

CURRICULUM VITÆ

Ken YOSHIDA

Department of Biomedical Engineering
Indiana University - Purdue University Indianapolis
723 W Michigan St., SL220
Indianapolis, IN 46202, United States
Ph: +1 (317) 274 9714 Email: yoshidak@iupui.edu Webpage: <https://bioellab.et.iupui.edu>

EDUCATION:

UNDERGRADUATE

University of California, San Diego		09.1984 - 06.1986
Pre-Applied Mechanics and Engineering Science	Transferred to UCLA in	1986
University of California, Los Angeles		09.1986 - 06.1989
BS Bioengineering with emphasis in biocybernetics	06.1989	

GRADUATE

University of Utah, Department of Bioengineering		07.1989 - 12.1994
Functional Stimulation & Control of Skeletal Muscle	Advisor: Kenneth W. Horch	
PhD Bioengineering	12.1994	

POSTDOCTORAL

University of Alberta, Division of Neuroscience		12.1994 - 04.1998
Post-doctoral Fellow in Neuroscience	Advisor: Richard B. Stein	
Aalborg University, Center for Sensory-Motor Interaction		05.1998 - 12.2000
Research Assistant Professor in Biomedical Engineering	Advisor: Thomas Sinkjær	

ACADEMIC APPOINTMENTS:

Indiana University - Purdue University Indianapolis, U.S.A.

Department of Biomedical Engineering		
Professor		08.2021 - present
Associate Professor (Tenured)		06.2013 - 07.2021
Associate Professor (Without Tenure)		11.2006 - 05.2013
Department of Electrical and Computer Engineering		
Adjunct Professor		08.2021 - present
Adjunct Associate Professor		11.2008 - 07.2021

Purdue University, U.S.A.

Weldon School of Biomedical Engineering		
Professor (Courtesy)		08.2021 - 12.2021
Associate Professor (Courtesy)		11.2006 - 07.2021

Indiana University School of Medicine, U.S.A.

Department of Physical Medicine and Rehabilitation		
Adjunct Senior Scientist		09.2021 - present

Rehabilitation Hospital of Indiana, U.S.A.

Research Associate		2015 - 2019
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Aalborg University, Denmark

Department of Health Science and Technology (Biomedical Engineering)		
Lektor (Associate Professor, Tenured)		01.2001 - 10.2006
Center for Sensory - Motor Interaction		
Adjunkt (Assistant Professor, Tenure track)		2000 - 2001
Forskningsadjunkt (Research Assistant Professor)		1998 - 2000

University of Alberta, Canada

Division of Neuroscience		
Postdoctoral Fellow		1994 - 1998

LICENSURE, CERTIFICATION, SPECIALTY BOARD STATUS

Credential	Number	Inclusive Dates
Indiana State Controlled Substance Registrant	61100884B	2.2010 - present
US DEA Controlled Substance Registrant	RY0527878	4.2018 - present

PROFESSIONAL ORGANIZATION MEMBERSHIPS:

Organization	Rank	Inclusive Dates
Biomedical Engineering Society	Member	11.1989 – 2012
IEEE Engineering in Medicine and Biology Society	Member	9.1989 – 6.2012
	Senior Member	6.2012 – present
International Functional Electrical Stimulation Society	Charter Member	8.1995 – present
	Elected BoD Member	1.2009 – 12.2011
	Elected BoD Member	1.2017 – 12.2019
	Elected EB Member	1.2020 – present
Society for Neuroscience	Founding Member	9.2018 - present
	Member	3.1998 – present
Tau Beta Pi Engineering Honor Society	Member, CA-ε	1989 – present
	Faculty Advisor, TBZ	2011 – 2013
	Primary Faculty Advisor, TBZ	2013 – 2015
	Primary Faculty Advisor, IN-ζ	2015 – present
	Founding Member, Central IN Alumni Chapter	2017 – present
Sigma Xi Research Honor Society	Member	2020 – present
International Society of Electrophysiology and Kinesiology	Member	2022 - present

PROFESSIONAL HONORS AND AWARDS:

RESEARCH

Jack Perkins Prize (Best paper published in *Medical Engineering and Physics* in 2013)

Institute of Physics and Engineering in Medicine 1.9.2014

Young Investigator Award

Sygekassernes Helsefond 2003

Research Award

Hede Nielsen Familiensfond 2002

Student Paper competition finalist (Region 8)

IEEE-Engineering in Medicine and Biology Conference (Paris) 1993

RESEARCH / CREATIVE ACTIVITIES:

PRESENTATIONS

All (108) conference papers / abstracts listed below resulted in either a poster or platform presentation as noted. All with the exception of A6 (National) & A69 (Local) were presented at international conferences or meetings as listed.

INVITED PRESENTATIONS – RESEARCH (27 TOTAL)

The localization of the presentation was defined by the scope / context of the meeting.

LOCAL

- Indiana Center for Regenerative Medicine and Engineering Seminar** **10.06.2019**
“Peripheral nerve bioelectric interfaces”
- IUPUI BME Dept Graduate Seminar** **19.09.2019**
“Design of peripheral nerve bioelectric interfaces: Is there rhyme or reason to how neural interfaces work?”
- Toronto Rehabilitation Institute (KITE), Toronto, ON, Canada** **25.04.2019**
Design of peripheral nerve bioelectric interfaces: Is there rhyme or reason to how neural interfaces work?”
- Indiana University Occupational Therapy Research Colloquium** **27.10.2016**
“Evaluation of the effect of sensory feedback on phantom limb pain in multi-center clinical trials”
- IUPUI BME Dept Graduate Seminar** **03.04.2015**
“The strange and circuitous path of the Extended Analog Computer”
- IUPUI BME Dept Graduate Seminar** **24.04.2014**
“Thin-film multi-channel micro electrode arrays: A bidirectional neural interface for neurorehabilitation?”
- IUPUI Biology Dept Seminar** **30.1.2009**
“Neuroprosthetics: research at the neural-electronic interface”

REGIONAL

- Mathematical Biosciences Institute Mini-workshop on Restoration of Movement Via Peripheral Nerve Stimulation, The Ohio State University** **29.04.2008**
“Strategies in applied peripheral nerve stimulation”

NATIONAL

- Society of Hispanic Professional Engineers 2013 National Meeting Indianapolis, IN** **1.11.2013**
“Interfaces to the peripheral nervous system for restoring sensory and motor functions”
- Rehabilitation Technology Seminar, Aalborg, Denmark,** **11.04.2005**
“Electrodes and neural interfaces for the peripheral nervous system: challenges and developments”
- Netværk Medicoteknik Conf.: Småt er godt eller Indlejrede Sensorer & Systemer** **10.2004**
“Neural interfaces, natural sensors and implanted electrode systems”

INTERNATIONAL

- Rehab Week 2019, Toronto, ON, Canada** **06.2019**
Keynote: FES technologies in bioelectric medicines. “FES to bioelectronic medicines: neural interfaces and methods for the autonomic nervous system to effect changes to organ function”
- Galvani Bioelectronics R&D Network Meeting, Nice, France** **13.04.2018**
“Low frequency alternating current block”

Rehab Week 2017 Pre-conference Workshop, London, UK	16.7.2017
"Evaluation of the effect of sensory feedback on phantom limb pain in multi-center clinical trials"	
Glaxo Smith Kline, Bioelectronics R&D Network Meeting, San Diego, CA	11.11.2016
Optimization of electrode spacing and geometry - Stimulation	
2016 Conference of the International Functional Electrical Stimulation Society (IFESS2016)	
La Grande Motte, France	8.6.2016
Anniversary Session: "FES neural interfaces: Pushing ideas and models into prototypes"	
Glaxo Smith Kline Bioelectronics R&D Network Meeting, Atlanta, GA	11.10.2015
What is the required electrode architecture? Focus on electrode design, spacing	
IEEE - Engineering in Medicine and Biology Conference 2014 Chicago, IL	29.08.2014
Electronic Bio-interfaces (Invited Session) FC11: "Bioelectric interfaces for the peripheral nervous system"	
ICNR Pre-conference Workshop, Aalborg, Denmark	23.07.2014
"Electrophysiology, design and applications of invasive interfaces"	
Glaxo Smith Kline / NIH / DARPA Bioelectronic Medicines Summit, NYC, NY	16-17.12.2013
"Signal analysis and modeling for peripheral nerve recordings"	
Glaxo Smith Kline / NIH / DARPA Bioelectronic Medicines Webinar	14.11.2013
"Signal analysis and modeling for peripheral nerve recordings"	
DEMOVE Symposium, Göttingen, Germany	22.10.2013
"Thin-film multi-channel micro electrode arrays: A bidirectional neural interface for neurorehabilitation"	
Symposium on Advances in Neural Rehabilitation Engineering (ANRES)	
Aalborg, Denmark	25.08.2010
Keynote: Neural Interfaces. "Current challenges in interfaces for the peripheral nervous system"	
Symposium on Advances in Neural Rehabilitation Engineering (ANRES)	
Aalborg, Denmark	24.08.2009
"Peripheral neural interfaces for restoration of motor and sensory function"	
Biomedical Engineering Society 2007 Fall Meeting, Los Angeles, CA	09.2007
"Thin Film Longitudinal Intra-Fascicular Electrodes (tfLIFE): a multichannel peripheral nerve neural interface"	
International Conference on Rehabilitation Robotics 2007 (ICORR '07), Noordwijk, The Netherlands	06.2007
"Recording experience with the thin-film Longitudinal Intra-Fascicular Electrode, a multichannel peripheral nerve interface"	
Journées Bilan ROBEA 2005, Montpellier, France	3.2005
"Neural interfaces, natural sensors and closed loop control of FES"	

FUNDED & PENDING RESEARCH GRANTS / FELLOWSHIPS:
28 total awards, \$3.5M / \$34M (Amount to KY / Total Project Award)

Cook Research Inc.	04/2021 - 09/2021
"Ultrasonic Characterization of Hydrogels"	
Yoshida (PI) Role: PI Status: Completed	\$1,000
NIH-R21- R21EB028469	07/2019 - 06/2023
"Reversible block of nerve conduction using low frequency alternating currents"	
Yoshida (PI) Role: PI Status: Active	\$630,000
DARPA D17PC00125 Sub #3396-DPA-2S/IU	07/2017 – 12/2020
"Flexible Low-Modulus Nanofiber-based TIME Nerve Interfaces – Option Period"	06/2019 - 12/2020
Luna Innovations (Prime) Role: Sub-PI Status: Completed	\$125,000
"Flexible Low-Modulus Nanofiber-based TIME Nerve Interfaces"	07/2017 - 05/2019
Luna Innovations (Prime) Role: Sub PI Status: Completed	\$374,000
GSK / Galvani Bioelectronics Exploratory Research Grant #100040339	08/2014 – 09/2019
"Low Frequency Alternating Current Block – Phase 2"	01/2019 – 09/2019
Yoshida (PI) Role: PI Status: Completed	\$74,000
"Low Frequency Alternating Current Block – Phase 1"	12/2017 – 12/2018
Yoshida (PI) Role: PI Status: Completed	\$42,500
"Qionics Subcontract"	02/2017 - 12/2017
Sarpeshkhar (PI) Role: Sub PI Status: Completed	\$39,600
"Unmyelinated nerve fiber recordings using a model-informed electrode design"	08/2014 – 12/2017
Yoshida (PI) Role: PI Status: Completed	\$270,000
European Commission FP7 HEALTH.2013.2.2.1-5 602547	09/2013 – 08/2017
"Natural sensory feedback for phantom limb pain modulation and therapy (EPIONE)"	
Jensen (Coordinator) Role: Co-PI Status: Completed	\$400k / \$7.5M (5.98M€)
NIH STTR Phase I R41AT008649-01A1	09/2014 – 08/2016
"Universal Amplifier System for High-fidelity Multi-modal Biosignal Recordings"	
Wl Combs and Yoshida (Co PI) Role: Co PI Status: Completed	\$93,000 / \$257,000
NSF STTR Phase I IIP-1417062	07/2014 – 12/2015
"STTR Phase 1b: Extended Analog Computer Development as a Digitally Configurable, High Speed, High Order, and Low Power Analog Matched Filter"	
Mattes and Yoshida (Co PI) Role: Co PI Status: Completed	\$9,000 / \$30,000
"STTR Phase 1: Extended Analog Computer Development as a Digitally Configurable, High Speed, High Order, and Low Power Analog Matched Filter"	
Mattes and Yoshida (Co PI) Role: Co PI Status: Completed	\$108,000 / \$222,000
NIH R01 DC011759-01A1	04/2012 – 03/2017
"Challenges to vocal fold epithelia: functional and structural consequences"	
Sivasankar (PI) Role: Co-I Status: Completed	\$122,500
European Commission FP7-IDEAS-ERC 267888	03/2012 – 02/2016
"Decoding the Neural Code of Human Movements for a New Generation of Man machine Interfaces (REMOVE)"	
Farina (PI) Role: Co I Status: Completed	\$3,000 / \$3.2M (2.4M€)
IU Collaborative Research Grant Program	03/2011 – 09/2012
"Real-time multi-channel neural signal processor system"	
Yoshida (PI) Role: PI Status: Completed	\$30,000
NCRRN Foundation	05/2010 – 04/2011
"Transcranial Electrical Stimulation (TES) for mood, cognitive, sleep and pain disorders after Traumatic Brain Injury (TBI)"	
Malec (PI) Role: Co I Status: Completed	\$0 / \$46k

European Commission FP7 ICT 2007-2 224012	05/2008 – 04/2013
“Transverse, Intrafascicular Multichannel Electrode system for induction of sensation and treatment of phantom limb pain in amputees (TIME)”	
Jensen (Coordinator) Role: Co PI Status: Completed	\$0 / \$5.6M (3.65M€)
Danish High Technology Foundation	05/2006 – 05/2011
“Functional Electrical Stimulation”	
Struijk (Coordinator) Role: Co PI Status: Completed	\$305k / \$3.6M (20MDkk)
ⁱDanish Technical Research Council (STVF)	05/2005 – 05/2010
“Frame Project: Center for NeuroEngineering”	
Besenbacher (Coordinator) Role: Co PI Status: Completed	\$100,000 / \$3M (15MDkk)
European Aeronautic Defense and Space Company (EADS)	2005 – 2008
“Natural sensor feedback on-line interpretation for skeletal muscle artificial control-Potential applicability of the proposed research work to aero-spatial domain”	
Azevedo-Coste, Yoshida (Co PI) Role: Co PI Status: Completed	\$125,000
European Robotics Network FP6 EURON II, subproject	2005 – 2006
“Lower-extremity movement restoration through muscle closed-loop FES control using natural sensor feedback”	
Azevedo-Coste, Yoshida (Co PI) Role: Co PI Status: Completed	\$42,000
European Commission FP5-IST-2001-35094	10/2004 – 10/2005
“Development of a CYBERnetic HAND Prosthesis (CYBERHAND)”	
Dario (PI) Role: Sub PI Status: Completed	\$46,000 / \$3.3M (2.5M€)
Danish Technical Research Council (STVF) - Type 2 Talent Project	1/2001 – 12/2003
“Flexible Thin-Film Penetrating Electrodes”	
Yoshida (PI) Role: PI Status: Completed	\$278,000 (2.23MDkk)
European Commission FP5-IST-1999-10073	1/2001 – 1/2003
“Versatile System for Advanced Neuronal Recordings with Multisite Microelectrodes (VSAMUEL)”	
Hofmann (Coordinator) Role: Sub PI Status: Completed	\$242k / \$2M (1.87M€)
Medicotest A/S	1/2000 – 5/2000
“Development of an electrode impedance spectrometer”	
Yoshida (PI) Role: PI Status: Completed	\$40,000 (200k Dkk)
National Institutes of Health -	03/1996 – 03/1998
Hoffer (PI) Role: sub Co-I Status: Completed	\$35,000
Alberta Heritage Foundation for Medical Research	02/1995 – 02/1998
Postdoctoral Fellowship Role: Fellow Status: Completed	3yrs stipend
Canadian Network of Centres of Excellence, Neuroscience	12/1994 – 12/1997
Postdoctoral Fellowship Role: Fellow Status: Completed	3yrs stipend

RESEARCH PUBLICATIONS: † denotes publication as mentor, Underlined denotes student

RESEARCH IDENTIFIERS

OrcID: [0000-0003-4566-580X](https://orcid.org/0000-0003-4566-580X)

Web Of Science Researcher ID: [AAV-2990-2020](https://orcid.org/AAV-2990-2020)

Google Scholar: [XVo5SEgAAAAJ](https://orcid.org/XVo5SEgAAAAJ)

MyNCBI: <https://www.ncbi.nlm.nih.gov/myncbi/ken.yoshida.1/bibliography/public/>

BOOK CHAPTERS

- B8 **YOSHIDA, K.**, "Peripheral nerve signal processing, Denoising", in Encyclopedia of Computational Neuroscience 2nd Ed., Springer, D. Jaeger, R. Jung Eds., pp.2703-2706, 2022
[DOI: 10.1007/978-1-0716-1006-0](https://doi.org/10.1007/978-1-0716-1006-0)
- B7† COMOGLIO, C.C., MOSIER, K, **YOSHIDA, K.**, "Ch.1. - An Introduction to Phantom Limb Pain" in *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*, River Publishers, Jensen W, ed., 2019 (Chapter Submitted 5.2017, Final Revisions 8.2019, In Press 11.2019)
ISBN: 978-87-7022-076-7
- B6† **YOSHIDA, K.**, BERTRAM, M.J., COX, T.G.H., RISO, R.R., "Ch.2.6 - Peripheral nerve recording electrodes and techniques" in *Neuroprosthetics: Theory and Practice*, 2nd ed., Imperial College Press, Horch, K.W. and Dhillon, G.S. Eds., 2017 (Submitted 5.2016, Accepted 2.2017, In Press 5.2017)
[DOI: 10.1142/10368](https://doi.org/10.1142/10368)
- B5 **YOSHIDA, K.**, "Peripheral nerve signal processing, Denoising", in Encyclopedia of Computational Neuroscience, Springer, D. Jaeger, R. Jung Eds., pp.2308-2312, 2015
[DOI: 10.1007/978-1-4614-6675-8_215](https://doi.org/10.1007/978-1-4614-6675-8_215)
- B4† QIAO, S., MAUSER, K., **YOSHIDA, K.**, "Progress in peripheral neural prosthetics" in *Introduction to neural engineering for motor rehabilitation*, IEEE Press / J. Wiley Press, D. Farina, W. Jensen, M. Akay eds., 2013 (Submitted Jan 2011, Revised 9.2011, Accepted 7.2012, In-Press 10.2012)
ISBN: 978-0-470-91673-5
- B3 SINKJÆR, T., **YOSHIDA, K.**, JENSEN, W., SCHNABEL, V., "Electroneurography" in *Encyclopedia of Medical Devices and Instrumentation*, J Wiley Press, Webster J, ed., 2005.
[DOI: 10.1002/0471732877.emd098](https://doi.org/10.1002/0471732877.emd098)
- B2 **YOSHIDA, K.**, RISO, R., "Ch.4.3 - Peripheral nerve recording electrodes and techniques", in *Neuroprosthetics: Theory and Practice*, Imperial College Press, Horch, K.W. and Dhillon, G.S. Eds., 2004.
ISBN: 978-981-238-022-7
- B1 **YOSHIDA, K.**, STRUIJK, J.J., "Ch.2.2 - The theory of peripheral nerve recordings", in *Neuroprosthetics: Theory and Practice*, Imperial College Press, Horch, K.W. and Dhillon, G.S. Eds., 2004.
ISBN: 978-981-238-022-7

INVITED EDITORIALS

- E2 STREET, T., **YOSHIDA, K.**, SPAICH E.G., MILOSEVIC, M., "The International Functional Electrical Stimulation Society (IFESS): Current and Future Developments", *ArtifOrgans*, 2022
[DOI: 10.1111/aor.14325](https://doi.org/10.1111/aor.14325)
- E1 MICERA, S., NAVARRO, X., **YOSHIDA, K.**, "Guest Editorial Interfacing With the Peripheral Nervous System to Develop Innovative Neuroprostheses", *IEEEtNSRE*, 17(5), pp 417-419, 2009.
[DOI: 10.1109/tnsre.2009.2033426](https://doi.org/10.1109/tnsre.2009.2033426). PMID: 19899194.

PEER-REVIEWED JOURNAL ARTICLES

- J65† HORN, M.R., VETTER, C., BASHIRULLAH, R., CARR, M, **YOSHIDA, K.**, "Characterization of the Electrical Properties of the Peripheral Nerve Laminae", *ArtifOrgans* (Submitted *IEEEtBME* 12.2020, Redirecting *ArtifOrgans* Submitted 8.2022, Accepted 10.2022)
- J64† SERGI, P.N., JENSEN, W., **YOSHIDA, K.**, "Geometrical characterization of local changes in tungsten microneedles tips after insertion into *in vivo* peripheral nerve", *Applied Sciences*, 12(18), 8938, 2022. (Accepted 8.2022).
[DOI: 10.3390/app12188938](https://doi.org/10.3390/app12188938)

- J63[†] [DOERING, O., VETTER, C.P., ALHAWWASH, A., HORN, M.R., YOSHIDA, K.](#), "Durable scalable 3D SLA-printed cuff electrodes with high performance carbon + PEDOT:PSS-based contacts", *ArtifOrgans*, 46(10), pp.2085-2096, 2022 (Submitted *ArtifOrgans* 2.2022, 5.2022, 8.2022, Accepted 8.2022)
[DOI: 10.1111/AOR.14387](#)
- J62[†] [LAZORCHAK, N., HORN, M.R., MUZQUIZ, M., MINTCH L., YOSHIDA, K.](#), "Accurate simulation of cuff electrode stimulation predicting *in-vivo* strength-duration thresholds", *ArtifOrgans*, 46(10), pp.2073–2084, 2022 (Submitted *ArtifOrgans* 2.2022, 5.2022, Accepted 6.2022)
[DOI: 10.1111/AOR.14374](#)
- J61[†] [ALHAWWASH, A., MUZQUIZ, M., RICHARDSON, L., VETTER, C.P., SMOLIK, M., GOODWILL, A., YOSHIDA, K.](#), "*In-vivo* peripheral nerve activation using sinusoidal low frequency alternating currents", *ArtifOrgans*, 00:1-11, 2022 (Submitted *ArtifOrgans* 2.2022, 5.2022, Accepted 6.2022)
[DOI: 10.1111/AOR.14347](#)
- J60[†] [MUZQUIZ, I., RICHARDSON, L., VETTER, C., SMOLIK, C., ALHAWWASH, A., GOODWILL, A., BASHIRULLAH, R., CARR, M., YOSHIDA, K.](#), "*In-vivo* application of low frequency alternating currents on porcine cervical vagus nerve evokes reversible nerve conduction block", *Bioelectric Medicines*, 7,9, 2021 (Submitted *JNE* 9.2020, *BEM*, 4.2021, Accepted: 6.2021)
[DOI: 10.1186/s42234-021-00072-w](#) PMID: 34187586; PMCID: PMC8243469.
- J59[†] [MUZQUIZ, M.I., MINTCH, L., HORN, M.R., CARR, M., SCHILD, J.H., BASHIRULLAH, R., YOSHIDA, K.](#), "A Reversible Low Frequency Alternating Current Nerve Conduction Block Applied to Mammalian Autonomic Nerves", *Sensors*, 21(13), 4521, 2021 (Submitted *SciRep* 9.2020, *Sensors* 4.2021, Accepted 6.2021)
[DOI: 10.3390/s21134521](#) PMID: 34282758; PMCID: PMC8271881.
- J58 [ČVANČARA, P., BORETIUS, T., LÓPEZ-ÁLVAREZ, V., MACIEJASZ, P., ANDREU, D., RASPOPOVIC, S., PETRINI, F., MICERA, S., GRANATA, G., FERNANDEZ, E., ROSSINI, P., YOSHIDA, K., JENSEN, W., DIVOUX, J-L, GUIRAUD, D., NAVARRO, X., STIEGLITZ, T.](#), "Stability of Flexible Thin-Film Metallization Stimulation Electrodes: Analysis of Explants after First-in-Human Study and Improvement of *in-vivo* Performance", *JNE*, 17(4), 046006, 2020 (Submitted 5.2020, Accepted 6.2020).
[DOI: 10.1088/1741-2552/ab9a9a](#) PMID: 32512544
- J57[†] [QIAO, S., STIEGLITZ, T., YOSHIDA, K.](#), "Estimation of the Electrode-fiber Bioelectrical Coupling from Extracellularly Recorded Single Fiber Action Potentials", *IEEEtNSRE*, 24(9), pp 951-960, 2016.
[DOI: 10.1109/TNSRE.2015.2489924](#) PMID: 26469339
- J56 [SERGI, P.N., JENSEN, W., YOSHIDA, K.](#), "Interactions among biotic and abiotic factors affect the reliability of tungsten microneedles puncturing *in vitro* and *in vivo* peripheral nerves: A hybrid computational approach", *Mat Sci Eng*, 59(2), pp 1089-1099, 2016.
[DOI: 10.1016/j.msec.2015.11.022](#) PMID: 26652468.
- J55 [MUCELI, S., POPPENDIECK, W., NEGRO, F., YOSHIDA, K., HOFFMANN, K.P., BUTLER, J., GANDEVIA, S.C., FARINA, D.](#), "Accurate and representative decoding of the neural drive to muscles in humans with multi-channel intramuscular thin-film electrodes", *J. Physiol*, 593(17), pp 3789-3804, 2015.
[DOI: 10.1113/JP270902](#) PMID: 26174910; PMCID: PMC4575568.
- J54 [HARREBY, K.R., KUNDU, A., YOSHIDA, K., BORETIUS, T., STIEGLITZ T., JENSEN, W.](#), "Subchronic stimulation performance of Transverser Intrafascicular Multichannel Electrodes in the median nerve of the Gottingen minipig", *Artif Organs*, 39(2), pp E36-E48, 2015
[DOI: 10.1111/aor.12347](#) PMID: 25053505.
- J53 [KUNDU, A., HARREBY, K.R., YOSHIDA, K., BORETIUS, T., STIEGLITZ T., JENSEN, W.](#), "Stimulation selectivity of the 'Thin-Film Longitudinal Intrafascicular Electrode' (tLIFE) and the 'Transverse Intrafascicular Multi-channel Electrode' (TIME) in the large nerve animal model", *IEEEtNSRE*, 22(2), pp. 400-410, 2014
[DOI: 10.1109/TNSRE.2013.2267936](#) PMID: 23799699.
- J52 [POPPENDIECK W., MUCELI, S., WELSCH, C., KROB, M.O., SOSSALLA, A., YOSHIDA, K., FARINA, D., HOFFMANN, K.P.](#), "Development of multi-channel intramuscular EMG recording electrodes", *Biomed Tech (Berl)*, 58(Suppl 1), Epub 2013 Sep 7.
DOI: 10.1515/bmt-2013-4380. PMID: 24043094.
- J51 [STIEGLITZ, T., BORETIUS, T., NAVARRO, X., BADIA, J., GUIRAUD, D., DIVOUX, J-L, MICERA, S., ROSSINI, P., YOSHIDA, K., HARREBY, K., KUNDU, A., JENSEN, W.](#), "Development of a neurotechnical system for relieving phantom pain using transversal intrafascicular electrodes (TIME)", *Biomedizinische Technik*, 57(6), pp. 457-465, 2012.

- DOI: [10.1515/bmt-2011-0140](https://doi.org/10.1515/bmt-2011-0140) PMID: 23037514
- J50[†] QIAO, S., TORKAMANI-AZAR, M., SALAMA, P., YOSHIDA, K., “Stationary Wavelet Transform and Higher Order Statistical Analyses of Intrafascicular Nerve Recordings”, *JNE*, 9(5), 2012.
DOI: [10.1088/1741-2560/9/5/056014](https://doi.org/10.1088/1741-2560/9/5/056014) PMID: 23010694
- J49[†] QIAO S., ODOEMENE, O., YOSHIDA, K., “Determination of electrode to nerve fiber distance and nerve conduction velocity through spectral analysis of the extracellular action potentials recorded from earthworm giant fibers”, *MBEC*, 50(8), pp.867-875, 2012.
DOI: [10.1007/s11517-012-0930-8](https://doi.org/10.1007/s11517-012-0930-8) PMID: 22714669
- J48[†] QIAO, S., YOSHIDA, K., "Influence of unit distance and conduction velocity on the spectra of extracellular action potentials recorded with intrafascicular electrodes", *MEP*, 35(1), pp.116-124, 2012.
DOI: [10.1016/j.medengphy.2012.04.008](https://doi.org/10.1016/j.medengphy.2012.04.008) PMID: 22578931
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Invention Disclosures

- ID13 **YOSHIDA, K.**, ALHAWWASH, A., HORN, M.R., “Low Frequency Alternating Current nerve activation”, ICO#2022-10, Filed 15 July 2021.
- ID12 **YOSHIDA, K.**, VETTER., C.P., “Novel high performance carbon + PEDOT:PSS electrode contact for bioelectric interfaces”, ICO#2021-134, Filed 24 May 2021
- ID11 **YOSHIDA, K.**, DOERING, O., “Closure for 3D printed cuff electrodes”, ICO#2021-133, Filed 24 May 2021
- ID10 **YOSHIDA, K.**, HORN, M.R., “Low Frequency Alternating Current (LFAC) nerve block”, IU 2017-133-02, Filed 13 Mar 2017
- ID9 LONTIS, E.R., JENSEN, W., **YOSHIDA, K.**, “Variable geometry pads and technique for sensory input on peripheral nerve trunks”, Filed 3 May 2016
- ID8 HIMEBAUGH, B.D., MATTES, G.W., **YOSHIDA, K.**, BERTRAM, M.J., “System for Continuous Low-Power Sensor Event Detection”, Filed 8 May 2015
- ID7 **YOSHIDA, K.**, SOLIMAN, MM., QIAO, S., HIMEBAUGH, B., MILLS, JW., “Implementation of arbitrary filters using analog voltage manifolds”, Filed 23 Jan 2012
- ID6 **YOSHIDA, K.**, MAUSER, K., STAVNSHØJ, J., “Invertible universal biosignals amplifier”, Filed 23 Aug 2011
- ID5 **YOSHIDA, K.**, SEMPSPROTT, D., “Calibration and compensation for lead wire parasitic capacitance using the rapid bioelectrode impedance spectrum characterization technique”, Filed 23 Aug 2011
- ID4 **YOSHIDA, K.**, SEMPSPROTT, D., “Rapid bioelectrode and tissue impedance spectrum characterization”, Filed 23 Aug 2011
- ID3 **YOSHIDA, K.**, QIAO, S., “Method for identification of nerve fiber distance and conduction velocity”, Filed 23 Aug 2011
- ID2 **YOSHIDA, K.**, “Thin-film intraneural electrode”, Filed 30 May 2007.
- ID1 **YOSHIDA, K.**, DJILAS, M., “Nerve cuff for shielding intraneural electrode signals from extraneural noise sources”, Filed 30 May 2007

TEACHING:

INDIANA UNIVERSITY - PURDUE UNIVERSITY INDIANAPOLIS - BIOMEDICAL ENGINEERING

BME41100 - Quantitative Physiology, 3CR (Core BME Course)

Introduction to systems physiology and classical control systems for biomedical engineers

Format: Lecture Role: Course Organizer, Lecturer

Term (Enrollment): F2007 (12), F2008 (15), F2009 (15), F2010 (28), F2011 (17), F2012 (30), F2013 (27), F2014 (31), F2015 (20), F2016 (22), F2017 (32), F2018 (32), F2019 (31), F2020 (40)

BME41101 - Quantitative Physiology in BME, 4CR (Core BME Course)

BME41100 expanded with a practical exercises section

Format: Lecture Role: Course Organizer, Lecturer

Term (Enrollment): F2021 (38), F2022 (34)

BME24100 - Fundamentals of Biomechanics, 4CR (Core BME Course)

Introduction to engineering mechanics (statics), and solid mechanics for biomedical engineers

Format: Lecture, Practicum Role: Course Organizer, Lecturer

Term (Enrollment): Sp2009 (27)

BME59500 - Biomedical Instrumentation, 3 CR (Elective Course)

Analog electronics and sensors applied to biomedical applications

Format: Lecture/Lab Role: Course Organizer, Lecturer

Term (Enrollment): Sp2008 (12), Sp2010 (7)

BME59500 - Neural Engineering, 3 CR (Elective Graduate Course)

Bioelectric phenomenon, and extracellular techniques and applications interacting with the phenomenon.

Format: Lecture/Lab Role: Course Organizer, Lecturer

Term (Enrollment): Sp2009 (5), Sp2011 (10), Sp2013 (7), Sp2015 (5), Sp2017 (13), Sp2019 (12), Sp2021 (14)

BME59500 - Embedded Bioinstrumentation, 3 CR (Elective Graduate Course)

Microcontrollers applied to embedded biomedical instrumentation

Format: Lecture/Lab Role: Course Organizer, Lecturer

Term (Enrollment): Sp2012 (2), Sp2014 (7), Sp2016 (8), Sp2018 (9), Sp2020 (8), Sp2022 (5)

BME697 - Directed Reading, 3 CR (Elective Graduate Course)

Non-thesis graduate level independent study

Format: Lecture Role: Course Organizer, Advisor

Term: F2014

BME696 - Directed Project, 3 CR (Elective Graduate Course)

Non-thesis graduate level independent study

Format: Lab Role: Course Organizer, Advisor

Term: Su2015, F2021(1)

INDIANA UNIVERSITY SCHOOL OF MEDICINE – BIOMEDICAL SCIENCES

GRDM G727 - Animal Models of Human Diseases, 1 CR (Elective Graduate Course)

Format: Lecture Role: Lecturer

Term: Sp2021(20), Sp2022(18)

HERRON SCHOOL OF ART AND DESIGN

Medical Imaging and Art

Application of medical ultrasound as a media for art

Format: Lab Role: Co organizer

Term: Fa2021(28)

PURDUE UNIVERSITY - WELDON SCHOOL OF BIOMEDICAL ENGINEERING
BME697a - CLA - Neural Prosthetics and Biocompatibility, 1 CR (Elective PhD Course)
PhD level topical critical literature analysis
Format: Lecture Role: Course Organizer, Lecturer
Term: Sp2008

AALBORG UNIVERSITY - SUNHEDSTEKNOLOGI (BIOMEDICAL ENGINEERING)
ST3 - Medikoteknisk Instrumentering (Bioinstrumentation), 3 ECTS (Core ST Course)
Analog electronics and circuit analysis for undergraduate (3rd semester) biomedical engineering students
Format: Lecture / Exercise Role: Course Organizer, Lecturer
Term: F2001, F2002, F2003, F2004, F2005

ST3 - Medikoteknisk Måleteknik (Medical measurements), 1 ECTS (Core ST Course)
Analog electronics and circuit analysis lab undergraduate (3rd semester) biomedical engineering students
Format: Lecture / Exercise Role: Course Organizer, Lecturer
Term: F2001, F2002, F2003, F2004, F2005

ST4 - System Arkitektur & Integration (Computer sys arch & intigration), 3 ECTS (Core ST Course)
Computer architecture and microcontroller programming course for undergraduate (4th semester) biomedical engineering students
Format: Lecture / Exercise Role: Course Organizer, Lecturer
Term: Sp2002, Sp2003, Sp2004, Sp2006

ST6 - Anvendt Fysik (Applied Physics: Biomechanics), 3 ECTS (Core ST Course)
Biomechanics (statics, dynamics and solid mechanics) for undergraduate (6th semester) biomedical engineering students
Format: Lecture / Exercise Role: Course Organizer, Lecturer
Term: Sp2003, Sp2004, Sp2006

AALBORG UNIVERSITY - EUROPEAN DOCTORAL SCHOOL
Neuroprosthetics Seminar Series
PhD level topical seminar series
Format: Lecture Role: Course Organizer, Co-Lecturer
Term: Sp2004, Sp2005, Sp2006

General Laboratory Techniques in Muscle and Nerve Histology
PhD level course on histological methods for muscle and nerve tissues
Format: Lecture / Lab Role: Course Organizer, Co-Lecturer
Term: Sp2003

Basic Experimental Data Acquisition and Processing
PhD level course on sampling and digital signal processing for non-engineers
Format: Lecture Role: Course Organizer, Lecturer
Term: F1999

Bioelectrodes for Neuro/Myoelectric Interfaces
PhD level course on bioelectric interfaces
Format: Lecture Role: Course Organizer, Lecturer
Term: Sp1999, Sp2001

MENTORING:Academic

22 BME IUPUI Undergraduate Students (2011-2014)

Research

11 Senior Design Team Projects Hosted

41 Undergraduate Research Practica Hosted (29 Domestic, 12 Foreign)

9 Graduate Research Practica Hosted (9 Foreign)

37 Graduate Students (25 MS (18 Thesis Advisor), 12 PHD (8 Thesis Advisor))

GRADUATE STUDENTS					
Individual	Role	Inclusive Dates	Degree	Status	Program
Nathaniel Lazorchak	Thesis Advisor	6.2022 - pres	MS	1	IUPUI-BME
Yutika Badhe	Committee	11.2021 - pres	PhD	1	UT Dallas
Bo Sun	Thesis Advisor	1.2021 – 8.2022	MS	3	IUPUI-BME
Michael Ryne Horn	Thesis Advisor	1.2021 – pres	PhD	1	IUPUI-BME
Awadh Alhawwash	Thesis Advisor	8.2020 – pres	PhD	1	Purdue BME
Christopher Hoffmann	Advisor	5.2020 – 5.2021	BSMS	2	IUPUI-BME
Onna Doering	Thesis Advisor	8.2020 – 5.2022	MS	2	IUPUI-BME
Awadh Alhawwash	Thesis Advisor	5.2019 – 8.2020	MS	2	IUPUI-BME
Christian Vetter	Thesis Advisor	1.2019 – 8.2020	MS	2	IUPUI-BME
David Bustamante	Committee	1.2018 – 5.2020	MS	2	IUPUI-BME
Devyani Kulkarni	Advisor	8.2018 – 5.2019	MS	2	IUPUI-BME
Ivette Muzquiz van Dyke	Thesis Advisor	5.2018 – 8.2020	BSMS	2	IUPUI-BME
Shozaf Zaidi	Advisor	5.2018 – 5.2019	BSMS	2	IUPUI-BME
Lindsay Richardson Zehrung	Thesis Advisor	1.2018 – 1.2020	MS	3	IUPUI-BME
Landan Mintch	Committee	1.2018 – 5.2019	MS	2	IUPUI-BME
Namrata Tamghare	Advisor	3.2017 – 5.2018	MS	2	IUPUI-BME
Chandrama Ahmed	Thesis Advisor	8.2015 – 12.2017	MS	2	IUPUI-BME
Caleb Comoglio	Thesis Advisor	5.2015 – 5.2017	MS	2	IUPUI-BME
Hunter Cox	Thesis Advisor	5.2015 – 8.2017	MS	2	IUPUI-BME
Michael Bertram	Thesis Advisor	3.2015 – 12.2017	MS	2	IUPUI-BME
Daniel Fisher	Advisor	1.2015 – 12.2016	MS	2	IUPUI-BME
Michael Ryne Horn	Thesis Advisor	5.2013 – 12.2016	MS	2	IUPUI-BME
Nan Ying	Thesis Advisor	9.2012 – 11.2012	MS	3	IUPUI-BME
Muller Soliman	Thesis Advisor	5.2011 – 7.2012	MS	2	IUPUI BME
David Sempstrott	Thesis Advisor	8.2009 – 11.2012	MS	2	IUPUI BME
Kevin Mauser	Thesis Advisor	8.2009 – 11.2012	MS	2	IUPUI BME
Shaoyu Qiao	Thesis Advisor	8.2009 – 5.2014	PhD	2	Purdue BME
Aritra Kundu	Committee, Advisor	2.2009 – 5.2013	PhD	2	Aalborg Univ
Smitha Murthy Jayaram	Advisor	9.2008 – 5.2009	MS	2	IUPUI BME
Bo Geng	Co-thesis Advisor	7.2008 – 7.2013	PhD	2	Aalborg Univ
Shaoyu Qiao	Thesis Advisor	6.2008 – 7.2009	MS	2	IUPUI BME
Seth Wilks	Committee	2008 – 7.2011	PhD	2	Purdue BME
Mastaneh Torkamani Azar	Co-thesis Advisor	4.2007 – 8.2009	MS	3	IUPUI ECE
Ernest Nlandu Kamavuako	Co-thesis Advisor	2.2007 – 6.2010	PhD	2	Aalborg Univ
Milan Djilas	Committee, Advisor	6.2006 – 10.2008	PhD	2	U Montpellier2
Cristian Pablo Pennisi	Thesis Advisor	2.2004 – 9.2008	PhD	2	Aalborg Univ
Marco Tosato	Committee, Advisor	5.2003 – 6.2007	PhD	2	Aalborg Univ
Eric Chemineau	Thesis Advisor	8.2002 – 2007	PhD	3	Aalborg Univ
Andrei Patriciu	Co-thesis Advisor	6.2000 – 2005	PhD	3	Aalborg Univ

Status = (1 In progress, 2 Completed, 3 Did not complete)

THESIS/DISSERTATION EXAMINATION COMMITTEES				
Individual	Role	Inclusive Dates	Degree	Institution
Parisa Sabetian	External	3.2020	PhD	Univ Toronto
Stephanie Iwasa	External	4.2019	PhD	Univ Toronto

POST-DOCTORAL FELLOWS			
Individual	Role	Inclusive Dates	Institution
Ashley Larson	Advisor	3.2021	Marion Univ-DO
Jing Xiong	Advisor	2.2010 – 8.2010	IUPUI BME
Mathijs Kurstjens	Advisor	1.2005 – 10.2006	Aalborg Univ
Kristian Hennings	Advisor	6.2004 – 12.2004	Aalborg Univ
Christine Azevedo Coste	Advisor	11.2003 – 9.2004	Aalborg Univ
Winnie Jensen	Co Advisor	6.2000 – 1.2003	Aalborg Univ Univ Illinois Chicago

FACULTY			
Individual	Role	Inclusive Dates	Institution
Justin Huber	Co-Mentor	4.2021 - Present	Univ Kentucky-MD

GRADUATE RESEARCH PRACTICA HOSTED			
Individual	Inclusive Dates	Home Institution	Host Institution
Abigail Beard	5.2022 - 8.2022	IUSM Bloomington (IMPRS)	IUPUI BME

UNDERGRADUATE RESEARCH PRACTICA HOSTED			
Individual	Inclusive Dates	Home Institution	Host Institution
Karan Bhula	10.2022 - pres	IUPUI-BME (NEIL)	IUPUI BME
Kila Johnson	5.2022 - 8.2022	U Indy (NSF REU)	IUPUI BME
Austyne Taylor	1.2022 - 3.2022	IUPUI BME - Butler Univ	IUPUI BME
Scott Miller	12.2021 - 5.2022	IUPUI BME	IUPUI BME
Tyler Fears	9.2021 - 6.2022	IUPUI BME (UROP)	IUPUI BME
James Lopes	6.2021 - 8.2021	IUPUI BME	IUPUI BME
Alexandria Dillon	6.2021 - 8.2021	Clark Atlanta Univ (NSF REU)	IUPUI-BME
Wushuang Yang	4.2020 - 5.2021	IUPUI BME	IUPUI BME
Travis Kening	4.2020 - 1.2021	IUPUI BME	IUPUI BME
Elijah Racz	2.2020 – 10.2020	IUPUI BME	IUPUI BME
Tyler Johnson	10.2019 - pres	IUPUI BME	IUPUI BME
Tyler Fears	8.2019 – 8.2021	IUPUI BME	IUPUI BME
Gideon Scott-Miller	8.2019 – 1.2020	IUPUI Biology	IUPUI BME
Justin-Thuy Parks	1.2020 – pres	IUPUI BME	IUPUI BME
Bryant Bernard	9.2019 – 1.2020	IUPUI ECE	IUPUI BME
Christopher Hoffman	5.2019 – 5.2020	IUPUI BME	IUPUI BME
Nathaniel Lazorchak	5.2019 – pres	IUPUI BME	IUPUI BME
Grant Gaebler	1.2019 – 5.2020	IUPUI BME	IUPUI BME
John Ragsdell	1.2019 – 5.2020	IUPUI BME	IUPUI BME
William Mcannally	10.2018 – 5.2019	IUPUI Neuroscience	IUPUI BME
Carolina Whitaker	5.2018 – 8.2018	CWRU, Summer Volunteer	IUPUI BME
Macallister Smolik	5.2018 – 1.2020	IUPUI Biology	IUPUI BME
Elizabeth Dow	5.2017 – 8.2017	PUWL, Summer Volunteer	IUPUI-BME
Lindsay Richardson	5.2017 – 12.2017	IUPUI BME	IUPUI BME
Steven Stone	7.2015 – 9.2015	IUPUI BME	IUPUI BME
Joseph Yeo	5.2014 – 8.2014	IUPUI BME	IUPUI BME
Tanja Green	5.2013 – 8.2013	IUPUI BME	IUPUI BME
Daniel Sisson	5.2013 – 8.2013	IUPUI BME	IUPUI BME
Elizabeth McIntyre	10.2012 - 1.2013	IUPUI BME	IUPUI BME

Aimee Kathman	8.2012 – 5.2013	IUPUI/Butler EDDP	IUPUI BME
Alexandre Rolland	4.2012 – 6.2012	IUT Montpellier, France	IUPUI BME
Talib Nalim	7.2010 – 8.2010	Summer Volunteer	IUPUI BME
Juliana Kim	5.2010 – 8.2010	Summer Volunteer	IUPUI BME
Mike Piontek	2.2010 – 5.2011	IUPUI BME	IUPUI BME
Seitu Joseph	2.2010 – 5.2011	IUPUI/Butler EDDP	IUPUI BME
Magali Carret	4.2008 – 6.2008	IUT Montpellier, France	IUPUI BME
Gwennaël Maffei	4.2006 – 6.2006	IUT Montpellier, France	Aalborg Univ
Sèverine Llamas	4.2006 – 6.2006	IUT Montpellier, France	Aalborg Univ
John Kudolo	2.2006 – 6.2006	Medical Univ Lübeck, Ger	Aalborg Univ
Mickaël Humbert	4.2005 – 6.2005	IUT Montpellier, France	Aalborg Univ
Geoffrey Hadjadj	4.2005 – 6.2005	IUT Montpellier, France	Aalborg Univ
Maxime Bureau	1.2005 – 6.2005	EIGSI La Rochelle, France	Aalborg Univ
Thjis Engels	2.2002 – 6.2002	Univ Twente, Netherlands	Aalborg Univ
Thomas Malina	8.2001 – 10.2001	Medical Univ Lübeck, Ger	Aalborg Univ
Felipe Otondo	6.1999 – 8.1999	Aalborg Univ	Aalborg Univ
Craig Schlagelmilch	6.1997 – 8.1997	U Alberta	U Alberta

Role = Advisor

GRADUATE RESEARCH PRACTICA HOSTED

Individual	Inclusive Dates	Home Institution	Host Institution
Aida Hejlskov Poulsen	8.2016 – 1.2017	Aalborg Univ., Denmark	IUPUI BME
Kasper Kunz Leerskov	8.2016 – 1.2017	Aalborg Univ., Denmark	IUPUI BME
Johannes Thorling Hadsund	8.2016 – 1.2017	Aalborg Univ., Denmark	IUPUI BME
Tobias Krøgholt	8.2016 – 1.2017	Aalborg Univ., Denmark	IUPUI BME
Lea Tøttrup Jørgensen	8.2016 – 1.2017	Aalborg Univ., Denmark	IUPUI BME
Andreas Werle	8.2016 – 1.2017	Hochschule Trier, Germany	IUPUI BME
Rune Monzel	8.2016 – 1.2017	Hochschule Trier, Germany	IUPUI BME
Peter Gänz	6.2014 – 11.2014	Hochschule Trier, Germany	IUPUI BME
Anatoliy Dobroshynskyy	6.2014 – 11.2014	Hochschule Trier, Germany	IUPUI BME

Role = Advisor

SENIOR DESIGN PROJECTS HOSTED

- 2021: BME Sr Design Team, Isaac Demaree, Sidnee Zeiser, Max Pugh, Zahrah Almuhaimeed
"Sensorized brace for wrist hand assessment", Co-mentor Justin Huber (U.KY).
- 2019: BME Sr Design Team, Ashley Twigg, Christopher Hoffman, Layla Al-Besher, Melody Hsieh
"MuscleCycle"
- 2018: BME Sr Design Team, Celia Ochoa, Hashim Jaber, Ajay Panuganti,
"Method to implement a multi-way strain relieved implantable bioelectric cable"
- 2017: BME Sr Design Team, Onna Doering, Mohamed Al-Jaboori, Rami Al-Rafie, Bo Sun,
"Dynamometer for measuring human performance during FES cycling"
- 2017: BME Sr Design Team, Brandon Casteel, Brad Patterson, Hunter Johnson, David Hutchings,
"Identification of a soft SLA media for 2.5D printing using a Form-1 Photostereographic Printer"
- 2016: BME Sr Design Team, Matthew Arkenberg, Kirstie Keene, Josh Arkanoff
"Modification of the Form-1 Photostereographic Printer"
- 2013: BME Sr Design Team, Michael Bertram, Sam Capouch, Eric Freeman, Jeff Marshall, Yuese Zheng
"Multichannel Functional Electrical Stimulation Control Software"
- 2012: BME Sr Design Team, Jeremiah Ayers, Tanja Green, Matthew Kiskowski, Logan Metzger
"Mechanical testing device for measuring the mechanics of vocal folds"
- 2011: BME Sr Design Team, Kevin Sempstrott, Scott Mercer, Aaron Marcket, Andrew Zeha
"Robotic assessment of leg biomechanics"
- 2010: BME Sr Design Team, Mike Piontek, James Boone, Philip Oliver, Christopher Wenzel
"Physician's dashboard", Jacob Keen (Rehabilitation Hospital of Indiana) Co-mentor.
- 2009: BME Sr Design Team, Courtney Robinson, Jonathan Landes, Nichole Leahy, Muller Soliman
"Physician's dashboard", Jacob Keen (Rehabilitation Hospital of Indiana) Co-mentor.

2007: BME Sr Design Team, Paul Curtis, Jack Chiang, Khalid Sergeni
"Physiological recorder", Ed Berbari Co-mentor.

STUDENT AWARDS

2021: Ivette Muzquiz, IUPUI Distinguished Master's Thesis Award (Awarded 11.2021)
2020: Onna Doering, IUPUI University Graduate Fellowship
2018: Ivette Muzquiz, IUPUI E&T CTEE research fellowship (Summer 2018, AY 2018-2019)
2018: Lindsay Richardson, IFESS Student Paper competition finalist.
2013: Shaoyu Qiao, IEEE NER Student Paper travel award pre-conference symposium.
2012: Shaoyu Qiao, Purdue University Sigma Xi Graduate Student Research Poster Award Competition.
First Place in Science and Engineering, for a the poster entitled *Method for identification of nerve fiber distance and conduction velocity through spectral analysis of extracellularly recorded action potentials*
2007: David Sempsrott, IUPUI University Graduate Fellowship
2006: Milan Djilas, IFESS Vodovnic Award (Best Student Paper), 1st Prize at IFESS 2006
2004: Eric T. Chemineau, IFESS Vodovnic Award (Best Student Paper) 2nd Prize at IFESS 2004

TEACHING GRANTS/FELLOWSHIPS:

IUPUI Navy Engineering Innovation & Leadership (NEIL) UROP **9/2022 - 5/2023**
Development of Inertial Measurement Units as a means to quantify the quality of human upper extremity movement

Mentee: Karan Bhula

Role: Mentor Co-Mentor: Justin Huber Status: Active **\$5,000**

IUPUI Center for Research and Learning - MURI **08/2019 – 05/2020**

Developing low-cost real-time biomedical multichannel functional electrical stimulators by fusing traditional methods with audio tools and Musical Instrument Digital Interface (MIDI) controllers.

Mentees: Grant Gaebler, Bo Sun, Emmett Husmann, Grace Collinge

Role: Co-mentor Mentor: Tim Hsu Status: Completed **\$500**

IUPUI Center for Research and Learning - UROP **05/2019 – 08/2019**

Mentees: Grant Gaebler

Role: Mentor Co-Mentor: Tim Hsu Status: Completed **\$500**

IUPUI Center for Research and Learning - UROP **05/2019 – 08/2019**

Mentees: John Ragsdell

Role: Mentor Status: Completed **\$500**

IUPUI Center for Research and Learning - MURI **09/2016 – 05/2017**

Development of a low cost non optical motion capture system for rapid clinical assessment of pathological gait

Mentees: Trang Pham, Hatem Aweied Alharthi, Alvaro Esperanca, Veronica D'Agosta

Role: Mentor Co-Mentor: Z Ben Miled Status: Completed **\$1,000**

IUPUI Center for Research and Learning - MURI **10/2014 – 05/2015**

Development of a Virtual Reality Based Psychophysical Assessment Method to Capture the Perceived Arm Position of the Amputee Phantom Limb

Mentees: Steven Albertson, James Beem, Denver Huynh, Jonathan Lau, Enlin Qian

Role: Co-Mentor Mentor: D. Baldwin Status: Completed **\$7,200**

IUPUI Center for Research and Learning - MURI **10/2013 – 04/2014**

Training the Extended Voltage Manifold Computer

Mentees: Michael Bertram, Nhan Hieu Do, Lucas Gramlin

Role: Mentor Co-Mentor: P. Salama Status: Completed **\$7,800**

IUPUI Center for Research and Learning - UROP **06/2012 – 05/2013**

Measuring the kinematics and biomechanics of the leg during end point manipulation

Mentee: Alec Willard

Role: Mentor

Status: Completed

\$1,000

IUPUI Center for Research and Learning - UROP

06/2012 – 05/2013

Rapid identification and separation of extracellularly recorded action potential units using the Extended Analog Computer

Mentee: Jeremiah Ayers

Role: Mentor

Status: Completed

\$1,000

IUPUI Center for Research and Learning – Summer MURI

06/2012 – 08/2012

Development of a Virtual Reality Based Psychophysical Assessment Method to Capture the Perceived Arm Position of the Amputee Phantom Limb

Mentees: Daniel French, Eric Wolf, James Corcoran, Thawnzapum Lian

Role: Mentor

Co-Mentor: P. Salama

Status: Completed

\$8,000

IUPUI Center for Research and Learning - MURI

09/2007 – 09/2008

Towards estimating the position of the leg using sensory information intercepted by neuroprosthetic electrodes

Mentees: Sriharsha Muttineni, David Sempsrott, Brandon Brungard

Role: Mentor

Mentor: S. O'Conner

Status: Completed

\$8,000

PRESENTATIONS & EXHIBITIONS

Local Exhibitions

"Below the Surface: Recasting Reality with Ultrasound", Organizers: Petranek, S., Holland, M., Yoshida, K., Miller, S., Ambery, L., Diller, E., Payton, J., 2-27 May 2022, Cultural Arts Gallery, Campus Center, Indiana University - Purdue University Indianapolis

Announcement: <https://events.iu.edu/herron/event/563233>

Virtual exhibit: <https://my.matterport.com/show/?m=AnYw8Xo5ZJ9>

Davinci Pursuit - "Imaging Science: Inside the Magic of Ultrasound Art (Live)", Petranek, S., Yoshida, K., Sameer, I., Toms, A., Podcast hosted by Mark Kesline, Aired 1 July 2022

Podcast Link: <https://www.thedavincipursuit.com/2022/07/01/imaging-science-inside-the-magic-of-ultrasound-art-live/>

National Exhibitions

"Creative Ultrasonics: A STEAM Pathway for Cross Disciplinary Student & Faculty Engagement in Higher Education", 27 Nov - 1 Dec 2022, Radiological Society of North America (RSNA) Annual Meeting Exhibition Showcase, McCormick Place, Chicago, IL.

STUDENT THESES AND DISSERTATIONS (as primary advisor)

2022 Doering, O., "A comparative analysis of local and global peripheral nerve mechanical properties during cyclical tensile testing", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis

DOI: 10.7912/C2/2935

2020 Alhawwash, A., "A novel approach to peripheral nerve activation using low frequency alternating currents", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis

DOI: 10.7912/C2/1378

2020 Vetter, C.P., "Development towards improved durability of implanted neuroprosthetic electrodes through surface modifications", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis

DOI: 10.7912/C2/1379

2020 Muzquiz, M.I., "Reversible nerve conduction block using low frequency alternating currents", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis

- DOI: 10.7912/C2/1377
- 2017 Ahmed, C., "Continuous characterization of universal invertible amplifier using source noise", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1360
- 2017 Comoglio, C., "Analysis of the efficacy of EPIONE therapies to treat phantom limb pain", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1356
- 2017 Cox, T.G.H., "Propagation of mechanical strain in peripheral nerve trunks and their interaction with epineural structures", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1357
- 2017 Bertram, M., "Development of the ICAANN; a low-powered, analog, neural signal processor", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1359
- 2016 Horn, M.R., "A Nerve Fiber Model and Prediction of Electrode-Fiber Coupling Simulation for Design of Peripheral Nerve Interfaces", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
ISBN: 978-0-355-59206-1
- 2014 Qiao, S., "Bioelectric nerve fiber to electrode coupling for unit identification and tracking", PhD Dissertation, Biomedical Engineering, Purdue University
ISBN: 978-1-369-07824-4
- 2012 Soliman, M., "Developing a neural signal processor using the extended analog computer", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1334
- 2012 Sempsrott, D., "Analysis of the bioelectric impedance of the tissue-electrode interface using a novel full-spectrum approach", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1343
- 2012 Mauser, K., "A digitally invertible universal amplifier for recording and processing of bioelectric signals", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
DOI: 10.7912/C2/1342
- 2009 Qiao, S., "Modeling and Characterization of the Spatial Selectivity of Intra-fascicular Electrodes", MS Thesis, Biomedical Engineering, Indiana University – Purdue University Indianapolis
ISBN: 978-1-369-07824-4
- 2008 Pennisi, C.P., "Optical activation of excitable cells: application of photosynthetic reaction centers" PhD Dissertation, Biomedical Engineering, International Doctoral School, Aalborg University, Denmark.
ISBN: 978-87-90562-97-7

SERVICE:
INDIANA UNIVERSITY - PURDUE UNIVERSITY INDIANAPOLIS

CAMPUS WIDE

Administrative Review Committee 8.2021 - 7.2022
Role: Member

Campus Promotion & Tenure Committee 8.2021 - 7.2022
Role: Member

Campus Sabbaticals Committee 8.2021 - 7.2022
Role: Member

SCHOOL OF ENGINEERING AND TECHNOLOGY

Unit Promotion and Tenure Board
Role: Member 8.2021 - pres
Role: Chair 8.2021 - 5.2022

Computer Resources Committee
Role: Member 2007 - pres
Role: Chair 8.2021 - pres

Graduate Education Committee
Role: Member 8.2007 - 5.2022

MSE Degree Ad-Hoc Committee
Role: Member 2.2022 - 5.2022

Strategic Plan Task force 4
Role: Member 8.2017 - 5.2019

Website Incremental Improvements Task force
Role: Member 8.2017 - 5.2019

Website Redesign Task force
Role: Member 8.2017 - 5.2019

DEPARTMENT OF BIOMEDICAL ENGINEERING

Graduate Committee (Combined Graduate Education, Admissions, Fellowships Committee)
Role: Member 8.2007 - 9.2010
Role: Chair 8.2014 - 5.2022

Undergraduate Committee
Role: Member 8.2007 - 9.2015

Primary Committee
Role: Member 8.2014 - 5.2022

Graduate Seminar Coordinator
Role: Coordinator 8.2013 - 9.2014

Graduate Student Association
Role: Faculty Advisor 9.2015 - 5.2022

Chair Search and Screen Committee
Role: Member 5.2018 - 1.2019

Ad-Hoc Faculty Search and Screen Committee
Role: Chair 4.2019

Microsoft MSDNAA Site Administrator
Role: Administrator 2008 - 2020

Indianapolis - West Lafayette Realignment BME Graduate Programs Sub Committee
Role: Member 9.2022 - pres

OTHER DEPARTMENTS

Weldon School (Purdue University BME Dept) Graduate Admissions Committee
Role: Member 2008 - 9.2010

Weldon School (Purdue University BME Dept) Tenure Track Search and Screen Committee
Role: Member 10.2022 - pres

IUPUI Electrical and Computer Engineering Faculty Search and Screen Committee
Role: Member 9.2013 - 5.2015

OTHER ORGANIZATIONS

Indiana Clinical and Translational Sciences Institute (CTSI) DEVICE Think Tank
Role: Standing Member 1.2021 - pres

AALBORG UNIVERSITY

iNano Consortium between Aarhus and Aalborg Universities
Role: Member 2003 – 2006

Sunhedsteknologi (Biomedical Engineering) core curriculum development group
Role: Member 2002

Sunhedsteknologi (Biomedical Engineering) Medical Systems specialization development group
Role: Member 2002

Center for Nanotechnology
Role: Member 2001 – 2006

PROFESSIONAL SERVICE:

LOCAL		
Organization	Activity	Inclusive Dates
Tau Beta Pi – Indiana Zeta Chapter	Primary Advisor Founding Advisor	5.2015 – present
Tau Beta Pi – Central Indiana Alumni Chapter	Founding member	5.2017 – present
Tau Beta Zeta	Faculty Advisor Primary Advisor	8.2011 – 7.2013 8.2013 – 5.2015
Analog Computer Solutions, Inc.	Founder, Shareholder	3.2014 – 2.2016
Refer2Input, LLC	Founder, Owner	4.2014 – 6.2020
Carmel High School - InvenTeam	Consultant	1.2017 – 4.2017
Rehabilitation Hospital of Indiana - InterFACE	Strategic Planning Committee, Member	4.2017 – 2019
NATIONAL		
ZRG1 NV-C (10) Small Business: Clinical Neurophysiology, Devices, Neuroprosthetics and Biosensors	Ad-Hoc Grant Reviewer	11.2022
2022/08 ZRG1 IMST-U (70) R RFA-RM-22-002: SPARC VNS Endpoints from Standardized Parameters (VESPA) (U54)	Ad Hoc Grant Reviewer	6.2022
NIH/NINDS Study Panel ZNS1 SRB-C (04)	Ad Hoc Grant Reviewer	3.2020, 2.2021

Veterans Administration RR&D	Ad-Hoc Grant Reviewer	2.2019, 8.2013, 8.2012, 3.2011, 8.2010, 3.2010
Tau Beta Pi Association	Fellowship Reviewer	4.2016 4.2017
Luna Innovations, Inc	Consultant	5.2016 – 10.2016
Analog Computing Solutions, LLP	Consultant	3.2014 – 2.2016
INTERNATIONAL		
Organization	Activity	Inclusive Dates
University of Toronto, Faculty P&T, K.M.	External Referee	1.2021
Canada Foundation for Innovation – Wearable technologies and fibre design	Expert Committee Member (Reviewer)	6.2020
European Commission, European Young Investigators Award (EURYI)	Ad-Hoc Award Reviewer	2004
Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering	Conference Abstract / Paper Reviewer	2022
IEEE-Engineering Medicine Biology Conference	Conference Abstract / Paper Reviewer	2007, 2009 – 2014, 2018, 2019, 2021
IEEE EMBS Conference on Neural Engineering	Conference Abstract / Paper Reviewer	2011, 2013
International Functional Electrical Stimulation Society	Conference Abstract / Paper Reviewer	2010, 2017, 2018, 2019, 2021, 2022
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)	Conference Abstract / Paper Reviewer	2007
Medical Physics and Biomedical Engineering World Congress 2009	Conference Abstract / Paper Reviewer	2009
European Signal Processing Conference (EUSIPCO)	Conference Abstract / Paper Reviewer	1999
Proceedings of the IEEE	Reviewer	2016
Journal of Neural Engineering	Reviewer	2009 – 2012, 2020
IEEE Transactions Neuroscience Rehab Eng.	Reviewer	2007 – 2013, 2015
Paladyn	Reviewer	2011
Medical Engineering and Physics	Reviewer	2010, 2008
Brain Research	Reviewer	2009
Journal of Neuroscience Methods	Reviewer	2008
IEEE Transactions Biomedical Engineering	Reviewer	2003 – 2006, 2001
IOP Measurement Science & Tech.	Reviewer	2005
IEEE Transactions Rehabilitation Engineering	Reviewer	1996 – 2001, 2005
Encyclopedia of Biomedical Engineering	Reviewer	2004, 2005
Annals Biomedical Engineering	Reviewer	2002
Neuromodulation	Reviewer	2000
Human Movement Science	Reviewer	2000
Journal of Automatic Control	Reviewer	2002
Journal of Nanoscience and Nanotechnology	Reviewer	2003
Frontiers in Neuroscience	Reviewer	2014
Frontiers in Neuroengineering	Reviewer	2014
Journal of Physiology – Paris	Reviewer	2016
European Journal of Translational Myology	Reviewer	2017
Nature - Scientific Reports	Reviewer	2018
Frontiers in Neuroengineering	Review Editor	2009 – present
University of Toronto, Institute of Biomaterials and Biomedical Engineering – P. Sabetian	PhD Committee External Opponent	4.2020

University of Toronto, Institute of Biomaterials and Biomedical Engineering – S. Iwasa	PhD Committee External Opponent	4.2019
RehabWeek 2019 – Toronto, CA, IFESS Podium Session 2: Novel Technologies	Session Chair	26.06.2019
IFESS 2018 – Nottwil, CH, Keynote Session 1 Breathing, coughing, airway management	Session Chair	29.08.2018
IFESS 2018 – Nottwil, CH, Keynote Session 2 Pain	Session Chair	29.08.2018
IFESS 2018 – Nottwil, CH, Session 7 Implantable Systems	Session Chair	29.08.2018
RehabWeek 2017 – London, UK, Workshop – Novel technologies & natural sensory feedback for phantom limb pain modulation and therapy	Session Chair	17.07.2017
IFESS 2016 - La Grand Motte, FR, Session RS21	Session Chair	09.06.2016
31st Ann. Symp. of the Scandinavian Soc. for Laboratory Animal Science (ScandLAS), Aarhus DK, How do experiments in animal models complement experiments in human subjects? (A79)	Session Chair	15.05.2001
IFESS 2022 at RehabWeek	Scientific Program Committee	2022
IFESS 2020 (2021)	Scientific Program Committee	2019 - 2021
International Conference on Neuro Rehabilitation (ICNR)	Scientific Program Committee	2013-2014
IFESS 2014 Organizing Committee	Organizing Committee	2012
Aalborg University Faculty Search and Screen Cmte Faculty of Engineering and Science (position 42197)	External Assessor	11.2016 – 2.2017
Aalborg University Faculty Search and Screen Cmte Faculty of Engineering and Science (position 42063)	External Assessor	9.2013 – 11.2013
Aalborg University Faculty Search and Screen Cmte Faculty of Engineering and Science	External Assessor	2.2014 – 5.2014
Glaxo Smith Kline Bioelectronics – Challenge Committee	Consultant	2.2014 – 11.2014
Coloplast A/S	Consultant	2012

WEBINARS

IFESS WEBINAR SERIES: SERIES INITIATOR AND HOST			
Title	Speakers	Date	Role
Could electrical stimulation improve the recovery of people with Covid-19 following a prolonged ICU stay?	James Badger Gad Alon	06.10.2020	Host, Moderator
Electrical Stimulation in Neurological Disease: Clinical Objectives and Use in Practice	Ines Bersch-Porada	28.10.2020	Host
Functional Electrical Stimulation and Respiratory Function in the ICU with Covid-19 Patients	Euan McCaughey	01.12.2020	Host
A tribute for Prof Richard Stein	J. Andreas Hoffer Dejan Popovic Rick Berkelmans	18.12.2020	Host
Could Electrical Stimulation Improve the Recovery of People with Covid-19 Following a Prolonged ICU Stay?	Gad Alon James Badger	26.01.2021	Host
Mechanisms of Brain-Controlled Functional Electrical Stimulation of Muscles in Neurorehabilitation	Matija Milosevic	23.02.2021	Host
Upper Limb Functional Electrical Stimulation: Lessons Learned from Clinical Practice	Ines Bersch-Porada	02.03.2021	Host
Self managed Brain Computer Interfacing and Functional Electrical Stimulation in Clinical Practice	Aleksandra Vuckovic	11.05.2021	Host
Use it or lose it: Functional Electrical Therapy	Dejan Popovic	25.05.2021	Host
Use it or lose it: Functional Electrical Therapy	Dejan Popovic Lana Popovic Maneski Anil Aksoz	08.06.2021	Host
Special ACPIN & IFESS Joint Session on Clinical Practice Guidelines:	Therese Johnston Lisa Brown Jane Burridge Marietta van der Linden	22.06.2021	Host
Should we be using transcranial direct current stimulation (tDCS) in clinical practice?	Gad Alon	06.07.2021	Host
The Clinical Practical Use of Functional Electrical Stimulation for Walking with Parkinson's Disease	Paul Taylor, Maggie Donovan-Hall	20.07.2021	Host
IFESS/ACPIN Workshop: Bridging the Gap between Functional Electrical Stimulation Research and Clinical Implementation	Cathy Bulley Adine Adonis Lisa Brown Therese Johnston	09.11.2021	Host
Spinal Stimulation vs Functional Electrical Stimulation and Neuroplasticity	Lynsey Duffell Sean Doherty	06.12.2021	Host
A Tribute to Prof Dejan Popovic	Milos Popovic	13.12.2021	Host
IFESS/SIA Joint Webinar: Update on Service Provision towards Restoring Bladder and Bowel Function using Sacral Anterior Root Stimulation	Sir Philip Craven Sean Doherty Alex Green Deepti Bhargava	08.02.2022	Host
Spinal Injuries Association and IFESS Joint Webinar			
Feasibility of FES Cycling After Acute Spinal Cord Injury	Chester Ho	22.2.22	Host

Patient Perspective: Pressure Ulcer Prevention, Wound Healing and Electrical Stimulation for People With Spinal Cord Injury Spinal Injuries Association and IFESS Joint Webinar	Ines Bersch John Leen Manfred Neumann	8.3.22	Host
Clinical Practice Guideline Development for Using FES To Support Walking: A Delphi Consensus Study	Cathy Bulley	22.3.22	Host
The IFESS Next Gen Initiative: Are you being served?	Andrew Ekelem	10.5.22	Host Moderator
How to Establish an FES Service - MS Society UK and IFESS UK & Ireland Chapter Webinar	Christine Singleton Alison Clarke Rob Wright	24.5.22	Host
IFESS Open Meeting at RehabWeek 2022 - Rotterdam	Simona Ferrante Tamsyn Street Jonathan Jarvis Ken Yoshida	28.7.2022	Host Speaker
Electrical Stimulation Technologies and Sexual Functioning for Men Following Spinal Cord Injury	Tamsyn Street Neil Marshall Damian Smith	27.9.2022	Host
Emerging Technologies: Paediatric Non-Invasive Spinal Cord Stimulation (niSCS) Combined With Functional Electrical Stimulation (FES)	Gad Alon Gerti Motavalli	8.11.2022	Host
IFESS General Assembly	Simona Ferrante Tamsyn Street Ines Bersch Ken Yoshida	28.11.2022	Host Speaker
Multi-Contact Epineural Electrical Stimulation To Restore Upper Limb Functions	Christine Azevedo-Coste	10.1.2023	Host

