KYLE LOIZOS

801.633.7811 kyleloizos@gmail.com www.kyleloizos.com

EXPERIENCE
PROFESSIONAL

Director of Neuroscience Product and Sales 01/2023 - Present
Ripple, Salt Lake City, UT

Lead sales, support, and development/maintenance of products for neural recording and stimulation in human and animal studies. Manage accounts and connect with customers in a broad range of industries around the world, providing them with uniquely fitting electrophysiology research equipment to advance therapeutic and rehabilitative devices and basic neuroscience research.

Research Support and Product Engineer 02/2022 - 12/2022
Ripple, Salt Lake City, UT

Supported neuroscience researchers in using electrophysiological recording and stimulation systems in animal and human studies (single unit recordings, neural prosthetic development, brain computer interface development, intraoperative monitoring, etc.). Built user requirements for custom products.

Freelance Artist and Designer, Owner 02/2021 - Present
Kylo Creates LLC, Salt Lake City, UT

Commissioned digital product design and fine art: product design and prototyping in Figma, logo and icon design using Adobe CC tools, development using Swift, watercolor and pen/ink, mural design and painting.

Director of Engineering 02/2017 - 05/2021
Teveri, Pasadena, CA

Directed the engineering and design team. Designed company's first products involving liquid metal based stretchable electronics and lab tools/processes for handling and interfacing with them. Products included: smart textiles, strain gauges, embedded systems, and stretchable electronics in medical, athletic, and defense applications. Principal Investigator for a $1M Army award and on numerous grant applications.

Engineer Consultant 07/2015 - 02/2017
Bend LLC, Salt Lake City, UT

One of the first hires at Bend (now Teveri). Designed and tested stretchable audio and data cables, graphic design/marketing for the company (business cards, logo, web design, etc.)

Product Design Intern 06/2015 - 07/2015
IT'IS Foundation, Zurich, Switzerland

Tested software for modeling stimulation of retinal neurons and defining safety standards for implanted electronics.

EXPERIENCE
ACADEMIC

Research Scientist 04/2018 - 05/2021
University of Southern California, Los Angeles, CA

Advised a team of graduate students in efforts to improve prosthetics for those with retinal and hippocampal neurodegenerative diseases. Role included project strategy, technical writing and editing, and software development of simulation tools.

Research Assistant/Scientist 06/2010 - 04/2018
University of Utah, Salt Lake City, UT

Developed a simulation platform for modeling the interface between retina prosthetic electrodes and retina neural networks towards improving the efficacy of current rehabilitative and therapeutic devices. This included writing software in C++, NEURON, and Python.

Teaching Assistant - Entrepreneurship in Engineering 08/2016 - 12/2016
University of Utah, Salt Lake City, UT

Lectured on turning an idea into a product and basic finances associated with starting a business. Consulted with students on project and potential business ideas.

EDUCATION

Ph.D. Electrical and Computer Engineering
University of Utah, Salt Lake City, UT, 2017

Dissertation: “A multiscale computational modeling platform for design and analysis of electrical neural stimulation”

M.S. Electrical and Computer Engineering
University of Utah, Salt Lake City, UT, 2014

B.S. Electrical Engineering
University of Utah, Salt Lake City, UT, 2014

Scholarships: Honors at Entrance, EE Direct Admission

PATENTS

Fluidic Wire Connectors
Teveri LLC

U.S. Patent 10931036. Granted December 2021

Fluidic Wire Touch Sensors
Teveri LLC

U.S. Patent 20190235671. Granted August 2022

Clothes Hanger Recharger Device
Teveri LLC

U.S. Patent 20190235671. Granted April 2019

Liquid Level Sensor (Hydration Bladder)
University of Utah

U.S. Patent 10161779. Granted December 2018

EXPERTISE

Neurotechnology

Liquid Metal Electronics

Fine Art

Product Conceptualization and Management

Team Management

Writing and Presenting Technical Work

OUTSIDE WORK

Cooking, Running, Mountain Biking, Working on Cars, Reading, Painting

PUBLICATIONS

Color and Cellular Selectivity of Retinal Ganglion Cell Subtypes Through Frequency Modulation of Electrical Stimulation
J. Paknahad, K. Loizos, L. Yue, M.S. Humayun, G. Lazzi

Scientific reports 2021

Model-Based Comparison of Current Flow in Rod Bipolar Cells of Healthy and Early-Stage Degenerated Retina
P. Kosta, E. Iseri, K. Loizos, J. Paknahad, R. Pfeiffer, C. Sigulinksy, B. Jones, G. Lazzi

Experimental Eye Research 2021

Stimulus Waveform Design for Decreasing Charge and Increasing Stimulation Selectivity in Retinal Prostheses
P. Kosta, K. Loizos, G. Lazzi

IET Healthcare Technology Letters 2020

Targeted Stimulation of Retinal Ganglion Cells in Epiretinal Prostheses: a Multiscale Computational Study
J. Paknahad, K. Loizos, M. Humayun, G. Lazzi

IEEE Transactions on Neural Systems and Rehabilitation Engineering 2020

Admittance Method for Estimating Local Field Potentials Generated in a Multi-Scale Neuron Model of the Hippocampus
C. Bingham, J. Paknahad, C. Girard, K. Loizos, J. Bouteiller, D. Song, G. Lazzi, T.W. Berger

Frontiers in Computational Neuroscience 2020

Increasing Electrical Stimulation Efficacy in Degenerated Retina: Stimulus Waveform Design in a Multiscale Computational Model
K. Loizos, R. Marc, M. Humayun, J. Anderson, B. Jones, G. Lazzi

IEEE Transactions on Neural Systems and Rehabilitation Engineering 2018

Electromagnetic Safety Assessment of a Cortical Implant for Vision Restoration
P. Kosta, J. Paknahad, E. Gamez, K. Loizos, A. Roy, N. Talbot, S. Seidman, P. Datta, R. Dai, B. Pollack, R. Greenberg, G. Lazzi

IEEE Journal of electromagnetic, RF and microwaves in medicine and biology 2018

Model-Based Analysis of Electrode Placement and Pulse Amplitude for Hippocampal Stimulation
C. Bingham, K. Loizos, G. Yu, A. Gilbert, J.-M. Bouteiller, D. Song, G. Lazzi, T. Berger

IEEE Transactions on Biomedical engineering 2018

On the Computation of a Retina Resistivity Profile for Applications in Multi-Scale Modeling of Electrical Stimulation and Absorption
K. Loizos, A. RamRakhyani, J. Anderson, R. Marc, G. Lazzi

Physics in Medicine and Biology 2016

Virtual Electrode Design for Increasing Spatial Resolution in Retinal Prosthesis
K. Loizos, C. Cela, R. Marc, G. Lazzi

Healthcare Technology Letters, Institution of Engineering and Technology 2016

On the Modeling of Electrical Effects Experienced by Space Explorers During Extra Vehicular Activities: Intracorporal Currents, Resistances, and Electric Fields
C.J. Cela, K. Loizos, D. Hamilton, R.C. Lee, G. Lazzi

NASA Technical Report 2011

CONFERENCE PAPERS

Responsiveness of Retinal Ganglion Cells Through Frequency Modulation of Electrical Stimulation: a Computational Modeling Study
J. Paknahad, K. Loizos, M. Humayun, G. Lazzi

2020 42nd Annual Int'l Conference of the IEEE in Medicine and Biology Society

A Computational Study of Healthy and Degenerated Retinal Neural Networks
E. Iseri, P. Kosta, J. Pahnahad, K. Loizos, G. Lazzi

2020 BMES Annual Meeting

Spatial Activation and Propagation of Spiking Activity Through Hippocampus Due to Extracellular Electrical Stimulation
T. F. Millard, G. Yu, K. Loizos, J-M. Bouteiller, T. Berger, G. Lazzi

2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Analysis of Wireless Power Transfer System To Transmit Stimulation Waveforms to a Single Electrode at 100 Hz
M. Machnoor, J. Stang, K. Loizos, G. Lazzi

2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Selective Activation of Retinal Ganglion Cell Subtypes Through Targeted Electrical Stimulation Parameters
J. Paknahad, K. Loizos, P. Kosta, J. Stang, G. Lazzi

2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Computational Study of Neural Injury Due to Electrical Stimulation of Peripheral Nerve
J. Du, A. Morales, J. Paknahad, K. Loizos, J. Stang, G. Lazzi

2020 IEEE International Symposium on Antennas and propagation and USNC-URSI Radio Science Meeting

A Computational Study of Healthy and Degenerated Retinal Neural Networks
E. Iseri, P. Kosta, J. Paknahad, K. Loizos, G. Lazzi

2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

An Optimized Admittance Method/NEURON Solver for Computational Modeling of Bioelectromagnetics for Neuroscience and Neuroprosthetics
J. Stang, G. Chen, J. Paknahad, K. Loizos, G. Lazzi

2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Recent Advances in Computational and Experimental Bioelectromagnetics for Neuroprosthesis
J.P. Stang, G. Chen, P. Kosta, J. Paknahad, M. Machnoor, E. Iseri, J. Du, K. Loizos, G. Lazzi

2019 International Conference on Electromagnetics in Advanced Applications

Color Selectivity Using Electrical Stimulation of Retinal Ganglion Cells: a Computational Study
J. Paknahad, K. Loizos, P. Kosta, E. Iseri, G. Chen, J. Stang, and G. Lazzi

2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

A Computational Network Model of Healthy Mammalian Retina Connectome
E. Iseri, J. Paknahad, G. Chen, P. Kosta, K. Loizos, and G. Lazzi

2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Computational Modeling of Current Flow in the Bipolar Cell Pathways of Degenerated Retina
P. Kosta, K. Loizos, E. Iseri, J. Paknahad, and G. Lazzi

2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Increasing Retinal Prosthetic Stimulation Efficiency in Degenerated Retina Through Characterization of the Electrical Stimulus Waveform
P. Kosta, K. Loizos, and G. Lazzi

2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Local Field Potential Estimation for Application in Hippocampal Prosthetic Device Design
J. Paknahad, K. Loizos, and G. Lazzi

2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Electrical Stimulation Waveform Design Towards Increasing the Effectiveness of Retina Prosthetic Devices
K. Loizos, R. Marc, G. Lazzi

2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Designing Electrical Stimulation in Hippocampal Prosthetic Devices Using a Closed-Loop Multi-Scale Simulation Strategy
J. Paknahad, K. Loizos, G. Lazzi

2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Safety Assessment of a Cortical Implant for the Restoration of Vision to the Blind
E. Gamez, P. Kosta, J. Paknahad, K. Loizos, A. Roy, R. Greenberg, N. Talbot, S. Seidman, P. Datta, R. Dai, G. Lazzi

2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Optimization of Orientation and Positioning of Magnetic Coils for Implantable Neural Stimulation
P. Kosta, K. Loizos, G. Lazzi

2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

A Closed-Loop Multi-Scale Simulation Paradigm for Accurate Modeling of Electrical Stimulation in Hippocampus
P. Hendrickson, K. Loizos, A. Gilbert, D. Song, G. Lazzi, T. Berger

2016 Society for Neuroscience Annual Meeting

Modeling Electrical Excitability in Retinal Network
K. Loizos, R. Marc, G. Lazzi

2016 Society for brain mapping and Therapeutics

Towards a Closed-Loop Multi-Scale Simulation Strategy for Accurate Modeling of Hippocampal Electrical Stimulation
K. Loizos, A. Gilbert, G. Lazzi

2016 38th Annual Int'l Conference of the IEEE in Medicine and Biology Society

A Large-Scale Detailed Neuronal Model of Electrical Stimulation of the Dentate Gyrus and Perforant Path as a Platform for Electrode Design and Optimization
C. Bingham, K. Loizos, G. Yu, A. Gilbert, D. Song, G. Lazzi, T. Berger

2016 38th annual Int'l Conference of the IEEE in Medicine and Biology Society

Towards High-Resolution Retina Prosthetics: Translating Connectomics to a Highly Accurate Computational Model
K. Loizos, R. Marc, G. Lazzi

2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Optimization of Magnetic Micro-Coils for Neural Stimulation
P. Kosta, A. RamRakhyani, Z. Kagan, K. Loizos, G. Lazzi

2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

An Analysis of Ephaptic Effects Within a Multi-Scale Model of the Hippocampus
A. Gilbert, K. Loizos, G. Yu, P. Hendrickson, T. Berger, G. Lazzi

2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

A 3D Computational Model for Analyzing the Effect of Ephaptic Coupling on Neural Stimulation
A. Gilbert, K. Loizos, G. Lazzi

2016 URSI National Radio Science Meeting

Computational Study of Local Field Potential in a Heterogeneous 3D Model of Rat Hippocampus
K. Loizos, J. Cline, G. Yu, C. Bingham, P. Hendrickson, G. Lazzi, T. Berger

2015 Society for Neuroscience Annual Meeting

Simulation Study for Estimating Effective Resistivity in Heterogeneous Neural Tissues
K. Loizos, A. RamRakhyani, G. Lazzi

2015 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Estimation of Initiated Local Field Potential by Neurons in Heterogeneous Tissue Environment Using Admittance Method
J. Cline, C. Bingham, K. Loizos, G. Yu, P. Hendrickson, J.-M. Bouteiller, T. Berger, G. Lazzi

2015 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Optimizing Electrode Placement Using a Multiscale Model of the Hippocampus
A. Gilbert, K. Loizos, G. Yu, P. Hendrickson, G. Lazzi, T. Berger

2015 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

A 3D Admittance-Level Computational Model of a Rat Hippocampus for Improving Prosthetic Design
A. Gilbert, K. Loizos, A. RamRakhyani, P. Hendrickson, T. Berger, G. Lazzi

2015 37th annual Int'l Conference of the IEEE in medicine and biology society

Multi-Scale Simulation of Extracellular Electrode Stimulation in the Dentate Gyrus
P. Hendrickson, K. Loizos, J. Cline, G. Lazzi, T. Berger

2014 Society for Neuroscience annual meeting

A Multi-Scale Computational Model for the Study of Retinal Prosthetic Stimulation
K. Loizos, G. Lazzi, J.S. Lauritzen, J. Anderson, B.W. Jones, R. Marc

2014 36th annual Int'l Conference of the IEEE in medicine and biology society

Cell Selectivity in Response to Retinal Prosthetic Stimulation
K. Loizos, J. Cline, G. Lazzi

2014 URSI National Radio Science Meeting

Multi-Scale Modeling of Electrical Stimulation of the Retina
K. Loizos, V. Bhola, G. Lazzi

2013 BMES Annual Meeting

On the Modeling and Validation of the Retinal Neural Response to Electrical Stimulation
V. Bhola, K. Loizos, G. Lazzi

2013 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting

Towards a Minimally-Invasive Applicator for Cancer Ablation
K. Loizos, C.J. Cela, E.S. Gamez, D.Y. Furgeson, G. Lazzi

2012 URSI National Radio Science Meeting

Virtual Electrodes: Increasing Spatial Resolution of Neural Interfaces Beyond the Actual Electrode Count
C.J. Cela, K. Loizos, G. Lazzi

2012 URSI National Radio Science Meeting

On the Modeling of Electrical Effects Experienced by Space Explorers During Extra Vehicular Activities: Intracorporal Currents, Resistances, and Electric Fields
C.J. Cela, K. Loizos, G. Lazzi, D. Hamilton, R.C. Lee

2011 82nd Annual Scientific Meeting of the Aerospace Medial Association

Activation of Sensory and Motor Peripheral Nerves due to Cutaneous Electrical Stimulation
K. Loizos, C.J. Cela, G. Lazzi

2011 URSI National Radio Science Meeting