

## **SHAGHAYEGH (SHERRY) ABBASI**

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### **ACADEMIC APPOINTMENTS**

**Associate Professor**, University of Portland, Shiley School of Engineering, 2026 – present.

**Assistant Professor**, University of Portland, Shiley School of Engineering, 2020 – 2026.

**Adjunct Professor**, University of San Diego, Shiley-Marcos School of Engineering, 2014 – 2020.

**Visiting Scientist**, University of California San Diego, Department of Bioengineering, 2015 – present.

**Volunteer Advisory Team Member**, United Front Multicultural Commons (UFMC), University of San Diego, 2015 – 2017.

**Research Assistant**, University of Washington, MEMS Laboratory, 2005 – 2011.

### **EDUCATION**

**University of Washington**, Seattle, WA

PhD in Electrical Engineering with an emphasis in MEMS, 2011

**University of Washington**, Seattle, WA

Master of Science in Electrical Engineering, 2007

**Sharif University of Technology**, Tehran, Iran

Bachelor of Science in Electrical Engineering, 2005

### **COURSES TAUGHT**

#### **University of Portland**

- Introduction to Neuroimaging and Brain Stimulation, EE 465/BME 564
- Digital Signal Processing, EE 463- BME 563
- Embedded System Design, EE 334
- Electrical Circuits Lecture, EE 261
- Electrical Circuits Lab, EE 271
- Introduction to Engineering, EGR 110

#### **University of San Diego**

- Optoelectronic Materials and Devices
- Semiconductor Electronic Devices
- Electromechanical System Design
- Object Oriented Programing C++

## **University of California, San Diego**

- Applied Probability and Statistics

### **STUDENTS ADVISED**

- Research Students:
  - 2021: Erik Liu, Robert Magruder, George Duggan
  - 2022: Erik Liu, Kenneth Rudnicki, Benjamin Joray
  - 2023: Matt David, Lucian Kennelly
  - 2024: Matt David, Carter Rhoades
  - 2025: Rylan Okasaki, Carter Rhoades
  - 2026: Rylan Okasaki, Carter Rhoades, Diego Mendez, Kekoa Dierks
- Senior Capstone Projects:
  - Project Connect Four, Delaney Barnett, Franklin Kuss, Erik Liu, Joey Gabriel, 2020 – 2021

### **PROFESSIONAL EXPERIENCE**

**Chief Technology Officer**, QuantaEd, San Diego, CA, 2013 – 2014.

- Customized course design for industry training
- Quality check for technical content

**Senior System Design Engineer**, Lumedyne Technologies, San Diego, CA, 2011 – 2013.

- Design and simulation of a micro-scale time-based accelerometer

### **SCHOLARLY WORK**

#### **Peer-Reviewed Journal Publications:**

Shaghayegh Abbasi, Sravya Alluri, Vincent Leung, Peter Asbeck, and Milan T. Makale, "Design and Validation of Miniaturized Repetitive Transcranial Magnetic Stimulation (rTMS) Head Coils", *Sensors*, Vol. 24, no. 5: 1584, 2024.

Milan T. Makale, Shaghayegh Abbasi, Chad Nybo, Jason Keifer, Lori Christman, J. Kaci Fairchild, Jerome Yesavage, Kenneth Blum, Mark S. Gold, David Baron, Jean Lud Cadet, Igor Elman, Catherine A. Dennen, Kevin T. Murphy, "Personalized repetitive transcranial magnetic stimulation (prtms®) for post-traumatic stress disorder (ptsd) in military combat veterans", *Heliyon*, Vol. 9, Issue 8, 2023.

Peter Asbeck, Sravya Alluri, Vincent Leung, Shaghayegh Abbasi, and Milan Makale, "An Efficient Circuit for Pulsed Magnetic Neural Stimulation", *IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology*, 2022, Vol. 7, no. 3, pp. 258-265, Sept. 2023.

Shaghayegh Abbasi, Sathana Kitayaporn, Michael J. Siedlik, Daniel T. Schwartz, and Karl F. Böhringer, "Electrodeposition modeling and optimization to improve thin film patterning with orchestrated structure evolution", *Nanotechnology*, Vol. 23, pp. 305301, 2012.

Shaghayegh Abbasi, Sathana Kitayaporn, Daniel T. Schwartz, and Karl F. Böhringer, "Orchestrated Structure Evolution: Modeling Growth-Regulated Nanomanufacturing", *Nanotechnology*, Vol. 22, pp. 165303, 2011.

Ehsan Saeedi, Shaghayegh Abbasi, Karl F Böhringer, Babak A. Parviz, "Molten-Alloy Driven Self-assembly for Nano and Micro Scale System Integration", *Fluid Dynamics and Materials Processing*, Vol. 2, No. 4, pp. 221-246, 2007.

### **Peer-Reviewed Conference Publications:**

Kathleen Bieryla, Shaghayegh Abbasi, and Jordyn Wolfand, "Student Retention in Engineering: Interacting Factors Across Majors", *Proceedings of the ASEE Annual Conference and Exposition*, Charlotte, North Carolina, June 21 – 24, 2026.

Shaghayegh Abbasi, Carter Rhoades, Vincent Leung, Peter Asbeck, and Milan Makale, "Ultra-High Frequency Transcranial Magnetic Stimulation (TMS) for Treatment of Depression", *12<sup>th</sup> International IEEE EMBS Conference on Neural Engineering*, San Diego, California, November 11 – 14, 2025.

Shaghayegh Abbasi, Matt David, Vincent Leung, Peter Asbeck, and Milan Makale, "Coil Orientation and Stimulation Threshold in Transcranial Magnetic Stimulation (TMS)", *46<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Orlando, Florida, July 15 – 19, 2024.

Shaghayegh Abbasi, Kathleen Bieryla, Jordyn Wolfand, "Engineering major selection: Impacting factors and facilitating classroom strategies", *Proceedings of the ASEE Annual Conference and Exposition*, Portland, Oregon, June 23 – 26, 2024.

Kathleen Bieryla, Shaghayegh Abbasi, Jordyn Wolfand, "Early Design Sprint Impact on Engineering Identity and Entrepreneurial Mindset in the First Year", *Proceedings of the ASEE Annual Conference and Exposition*, Portland, Oregon, June 23 – 26, 2024.

Shaghayegh Abbasi, Benjamin Joray, Kenneth Rudnicki, Vincent Leung, Peter Asbeck, and Milan Makale, "Coil Size and Current Pulse Optimization through Multi-Scale Modeling for Repetitive Transcranial Magnetic Stimulation (rTMS) ", *11<sup>th</sup> International IEEE EMBS Conference on Neural Engineering*, Baltimore, Maryland, April 25 – 27, 2023.

Shaghayegh Abbasi, Jordyn M. Wolfand, and Shazib Z. Vijlee, "Constructive Controversy: Optimizing Decision Making in Engineering Design Teams", *Proceedings of the ASEE Annual Conference and Exposition*, Minneapolis, Minnesota, June 26 – 29, 2022.

Shaghayegh Abbasi, Erik Liu, Milan Makale, and Kevin T. Murphy, "EEG Guided Personalized rTMS (PrTMS®) for Post Traumatic Stress Disorder (PTSD)", *4<sup>th</sup> International Brain Stimulation Conference*, Charleston, South Carolina, December 6 – 9, 2021.

Peter Asbeck, Sravya Alluri, Vincent Leung, Mark Stambaugh, Shaghayegh Abbasi, Milan Makale, "A Compact Circuit for Boosting Electric Field Intensity in Repetitive Transcranial Magnetic Stimulation (rTMS) ", *43<sup>rd</sup> Annual International Conferences of the IEEE Engineering in Medicine and Biology Society*, Virtual Conference, October 31 – November 4<sup>th</sup>, 2021.

Vincent Leung, Mark Stambaugh, Shaghayegh Abbasi, Peter Asbeck, David Gough, Milan Makale, and Kevin T. Murphy, "A Compact Battery-Powered rTMS Prototype", *42<sup>nd</sup> Annual International Conferences of the IEEE Engineering in Medicine and Biology Society*, Montreal, Canada, July 20 – 24, 2020.

Shaghayegh Abbasi, Ernest M. Kim, "Integration of C programming and IoT in a Raspberry Pi Controlled Robot Car in a Freshmen/Sophomore Engineering Core Class", *Proceedings of the 127<sup>th</sup> ASEE Annual Conference and Exposition*, Montreal, Canada, June 22 – 26, 2020.

Shaghayegh Abbasi, Ernest M. Kim, and Thomas F. Schubert, "Digilent Analog Discovery 2<sup>TM</sup> and Bench-top Instruments: A comparison", *Proceedings of the 126<sup>th</sup> ASEE Annual Conference and Exposition*, Tampa, Florida, June 16-19, 2019.

Shaghayegh Abbasi, Ernest M. Kim, and Thomas F. Schubert, "Estimation of Experimental Errors Using Monte Carlo Analysis in the Introductory Electrical Circuits Laboratory", *Proceedings of the 125<sup>th</sup> ASEE Annual Conference and Exposition*, Salt Lake City, Utah, June 24-27, 2018.

Shaghayegh Abbasi, Rajashree Baskaran, and Karl F. Böhringer, "Capillary-Based Self-Assembly: Positioning Accuracy and Scaling", *6<sup>th</sup> Annual Conference Foundations of Nanoscience (FNANO09)*, Snowbird, Utah, April 20-24, 2009.

Shaghayegh Abbasi, Andrew X. Zhou, Rajashree Baskaran, and Karl F. Böhringer, "Part Tilting in Capillary-Based Self-Assembly: Modeling and Correction Methods", *21<sup>st</sup> IEEE International Conference on Micro Electro Mechanical Systems*, Tucson, January 13-17, 2008.

### **Presentations:**

Shaghayegh Abbasi, Carter Rhoades, Vincent Leung, Peter Asbeck, and Milan Makale, "Ultra-High Frequency Transcranial Magnetic Stimulation (TMS) for Treatment of Depression", *12<sup>th</sup> International IEEE EMBS Conference on Neural Engineering*, San Diego, California, November 11 – 14, 2025.

Shaghayegh Abbasi, Matt David, Vincent Leung, Peter Asbeck, and Milan Makale, "Coil Orientation and Stimulation Threshold in Transcranial Magnetic Stimulation (TMS) ", *46<sup>th</sup>*

*Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Orlando, Florida, July 15 – 19, 2024.*

Shaghayegh Abbasi, Kathleen Bieryla, Jordyn Wolfand, "Engineering major selection: Impacting factors and facilitating classroom strategies", *Proceedings of the ASEE Annual Conference and Exposition*, Portland, Oregon, June 23 – 26, 2024.

Shaghayegh Abbasi, Benjamin Joray, Kenneth Rudnicki, Vincent Leung, Peter Asbeck, and Milan Makale, "Coil Size and Current Pulse Optimization through Multi-Scale Modeling for Repetitive Transcranial Magnetic Stimulation (rTMS)", *11<sup>th</sup> International IEEE EMBS Conference on Neural Engineering*, Baltimore, Maryland, April 25 – 27, 2023.

Shaghayegh Abbasi, Jordyn M. Wolfand, and Shazib Z. Vijlee, "Constructive Controversy: Optimizing Decision Making in Engineering Design Teams", *ASEE Annual Conference and Exposition*, Minneapolis, Minnesota, June 26 – 29, 2022.

Shaghayegh Abbasi, Erik Liu, Milan Makale, and Kevin T. Murphy, "EEG Guided Personalized rTMS (PrTMS®) for Post Traumatic Stress Disorder (PTSD)", *4<sup>th</sup> International Brain Stimulation Conference*, Charleston, South Carolina, December 6-9, 2021.

Shaghayegh Abbasi, Ernest M. Kim, "Integration of C programming and IoT in a Raspberry Pi Controlled Robot Car in a Freshmen/Sophomore Engineering Core Class", *127<sup>th</sup> ASEE Annual Conference and Exposition*, Montreal, Canada, June 22-26, 2020.

Shaghayegh Abbasi, Ernest M. Kim, and Thomas F. Schubert, "Digilent Analog Discovery 2<sup>TM</sup> and Bench-top Instruments: A comparison", *126<sup>th</sup> ASEE Annual Conference and Exposition*, Tampa, Florida, June 16-19, 2019.

Shaghayegh Abbasi, Ernest M. Kim, and Thomas F. Schubert, "Estimation of Experimental Errors Using Monte Carlo Analysis in the Introductory Electrical Circuits Laboratory", *125<sup>th</sup> ASEE Annual Conference and Exposition*, Salt Lake City, Utah, June 24-27, 2018.

Shaghayegh Abbasi, Andrew X. Zhou, Rajashree Baskaran, and Karl F. Böhringer, "Part Tilting in Capillary-Based Self-Assembly: Modeling and Correction Methods", *21<sup>st</sup> IEEE International Conference on Micro Electro Mechanical Systems*, Tucson, January 13-17, 2008.

## **SERVICE**

### **University:**

- Honors Program Mentor, 2021 – present
- Library Advisory Committee Member, 2023 – 2025
- Academic Senate Member, 2024 – present

### **Shiley School of Engineering:**

- EE Faculty Search Committee, AY 2020 – 2021
- BME Faculty Search Committee, AY 2021 – 2022

- UP IEEE Student Club Faculty Advisor, 2023 – present
- Weekend on the Bluff, 2022 – 2026
- First year/Sophomore Weekend, 2023 – 2024

**Professional:**

- Session chair, 46<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2024.
- Peer Reviewer:
  - IEEE Transactions on Biomedical Engineering
  - IEEE Transactions on Neural Systems and Rehabilitation Engineering
  - Journal of Psychiatric Research
  - Heliyon
  - Review of Scientific Instruments
  - IEEE Engineering in Medicine and Biology Conference

**PROFESSIONAL MEMBERSHIPS**

IEEE – Institute of Electrical and Electronics Engineers  
 ASEE – American Society for Engineering Education  
 SWE – Society of Women Engineers

**PROFESSIONAL MEETINGS ATTENDED**

Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2024  
 The NEURON Summer Course, Brown University, Providence, RI, 2024  
 Annual Conference of American Society of Engineering Education, 2024  
 International IEEE EMBS Conference on Neural Engineering, 2023  
 Annual Conference of American Society of Engineering Education, 2022  
 International Brain Stimulation Conference, 2021  
 NETI-2A Workshop, National Effective Teaching Institute, 2021  
 Annual Conference of American Society of Engineering Education, 2019  
 Annual Conference of American Society of Engineering Education, 2018  
 IEEE International Conference on Micro Electromechanical Systems, 2008