TRUNG LE

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EDUCATION

University of Washington, Seattle - PhD, Electrical and Computer Engineering   2020 – expected 06/25
University of California, Los Angeles - MS, Electrical and Computer Engineering   2020
Texas A&M University, College Station - BS, Electrical Engineering – Summa Cum Laude   2017

SELECT EXPERIENCE

Graduate Researcher   **University of Washington**   Seattle, Fall 2020 - present
- Developed a Spatiotemporal Transformer architecture leveraging contrastive learning and Bayesian hyperparameter optimization to model firing dynamics of neural population across time and space.
- Model achieved state-of-the-art performance on capturing neural dynamics across brain regions and task structures, and provides interpretability on how the neural population performs computation. ***Paper accepted to NeurIPS 2022***.

Autonomous Systems Research Intern   **HRL Laboratories**   Malibu, Summer 2019 - Fall 2020
- Developed a Generative Adversarial Network and a Graph Attention Network to predict trajectories of traffic agents in complex rule-lacking environments, achieving state-of-the-art performance in chaotic situations.
- Incorporated the model in an awareness system and a route planning scheme for autonomous vehicles leveraging human-like flocking behaviors of traffic agents. ***Patent pending***.

Graduate Researcher   **University of California, Los Angeles**   Los Angeles, Fall 2019 - Spring 2020
- Developed a U-Net-based model for fMRI-iEEG cross-modality learning, leveraging non-invasive fMRI to infer functional connectivity captured by invasive intracranial EEG to inform epilepsy presurgical assessment.

Software Engineer (full-time)   **General Motors**   Detroit, Feb 2018 – Aug 2018
- Implemented new logics and UI functionalities for Android infotainment apps incorporating automotive technologies.
- Refactored legacy code to enhance code maintainability, reusability, and structural modularity.
- Developed extensive automated tests, analyzed and resolved reported bugs, and monitored app performance metrics to ensure a smooth user experience. Improved code coverage from 30% to over 50%.

Summer Research Fellow   **Carnegie Mellon University**   Pittsburgh, Summer 2017
- Analyzed long-term electrophysiological data from motor cortex of monkeys doing a brain-computer interface task.
- Assessed anatomical connections based on firing patterns and evaluated the structure of biological neural networks via Monte Carlo simulation. Results helped gauge biological plausibility of models explaining animal's motor learning skills.

Undergraduate Researcher   **Texas A&M University**   College Station, Summer 2016 - Fall 2017
- Processed EEG signals recorded from stroke patients to monitor patient's levels of alertness in rehabilitation VR games. Applied support vector machines to classify attention levels based on spectra of beta and theta brain rhythms.
- Developed a wireless wearable system for 3D hand trajectory reconstruction. Processed signals and developed a Kalman sensor fusion scheme for Inertial Measurement Unit and Kinect camera.
- Improved the learning cores reconfigurability of an FPGA-based cascade support vector machine implementation. Recommended solutions for PCIe data transfer interface to enhance big data handling capability of the design.

SKILLS

Programming Languages: Python, MATLAB, R, Java, C, C++, C#, Verilog
Software: PyTorch, TensorFlow, Scikit-learn, Git, Unix, Android, Cadence, LabVIEW, Orcad, Unity3D
Hardware: Microcontrollers, FPGA, printed circuit boards, Inertial Measurement Unit, Kinect camera

SELECT AWARDS

- **$25,000 HRL Master's Fellowship**   2019
- **Department Merit-based Scholarships** – awarded to top 10% students annually   2011 – 2017
- **American Chamber of Commerce Scholarship** – 'Best of the Best' award, highest distinction among 556 candidates   Fall 2014
- **2nd prize – 3D game & wireless gaming glove development** – **PIF GameAthon** – youtube.com/watch?v=JJUZUkieOaQ   Spring 2014

PUBLICATIONS

- **T. Le**, E. Shlizerman. *STNDT: Modeling Neural Population Activity with Spatiotemporal Transformers*. In Conference on Neural Information Processing Systems (NeurIPS 2022).
- J. Li, **T. Le**, E. Shlizerman. *AL-SAR: Active Learning for Skeleton-based Action Recognition.* Under review at IEEE Transactions on Neural Networks and Learning Systems.
- **T. Le**, X. Zhou, S. Ravikumar, S. Chase. *Assessing anatomical connectivity in motor cortex*. Carnegie Mellon Undergraduate Program in Neural Computation Poster Symposium. August 2017, Pittsburgh, PA.
- **T. Le**, A. Akbari, R. Jafari. *An efficient sensor fusion scheme for hand trajectory reconstruction using inertial measurement unit and Kinect camera*. Texas A&M Student Research Week Symposium. March 2017, College Station, TX.
- **T. Le,** Y. Lin, Q. Wang, P. Li. *Implementation of cascade support vector machine on field programmable gate array*. Texas A&M Summer Undergraduate Research Poster Symposium. August 2016, College Station, TX.