Abdul Rahman Kreidieh

CONTACT
akreidieh@gmail.com — `aboudykreidieh.github.io` — `linkedin.com/in/abdulrahmankreidieh`

EDUCATION
University of California, Berkeley (*August 2016 - December 2022*)
- MSc/Ph.D. in CEE Systems Engineering
- Advised by Alexandre M. Bayen
- Area of research: Efficient learning methods in mixed-autonomy traffic

American University of Beirut (*September 2012 - May 2016*)
- Bachelors in Mechanical Engineering

SKILLS
Python, C++, Matlab, R, TensorFlow, PyTorch, Linux, SQL, MongoDB

EXPERIENCE
Visiting Researcher | Google Research (*March 2023 - ongoing*)
- Worked closely with teams in ads, sustainability, etc. to identify viable use cases for transportation signals.
- Developed a distributed data collection, aggregation, and analysis pipeline for determining the effects of network interventions on user mobility patterns.
- Constructed ML models capable of synthesizing geospatial and mobility data into usable signals for multiple ads-related projects. These signals increased the coverage of useful signals by a factor of 4-5 times.

Graduate Student Researcher | UC Berkeley (*May 2017 - December 2022*)
- Developed an autonomous driving simulation platform to run deep reinforcement learning experiments in mixed autonomy settings, see: `https://github.com/flow-project/flow`.
- Identified bottlenecks in the concurrent training of hierarchical reinforcement learning models and devised algorithms to address these limitations; see: `https://github.com/AboudyKreidieh/h-baselines`.
- Conducted computational studies validating the efficacy of reinforcement learning techniques in generating meaningful and diverse control strategies for automated vehicles.
- Collaborated with a team of more than 100 people in designing and implementing the first large-scale demonstration of traffic interventions through automated vehicles.

Research Intern, Smart City AI | Nissan Alliance SV Lab (*September 2021 - December 2021*)
- Designed a framework for macroscopic traffic state estimation via connected vehicles.
- Implemented various traffic state estimators and conducted hyperparameter studies to finetune them for certain key performance indicators (KPIs) such as measurement error against a simulated ground truth.
- Created visualization tools to monitor the aggregate state of traffic in real time.

Intern - Connected Vehicle Research | Toyota InfoTech Labs (*June 2021 - August 2021*)
- Developed a lightweight tool for validating the performance of different lane assignment strategies in simulations of throughout-restricted traffic.
- Formulated and implemented a multi-level hierarchical control mechanism for cooperative lane change assistance across multiple traffic segments.

TEACHING
Deep multi-agent reinforcement learning with applications to autonomous traffic (*Aug - Dec 2018*)
- Developed the course curriculum and prepared homework problems in TensorFlow.
- Provided lectures on various topics in multiagent RL, including non-stationary, and communication.
- Supervised and guided students through their semester-long projects.

Introduction to Computer Programming for Scientists and Engineers (*Jan - May 2017*)
- Led lab sessions of around 20 students and mentored them through their development.
- Formulated homework and exam problems in Matlab.

VOLUNTEER WORK
STEM Outreach Visit (*July 2019*)
- Prepared and hosted a tour of four research labs within UC Berkeley for a group of high school students.

Lebanese Red Cross, Youth Department (*August 2011 - March 2013*)
- Assisted with workshops in schools, environmental awareness projects, and various other activities.
- Organized the center's inventory and prepared an inventory list.