Minjune Hwang

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Education

University of California, Berkeley Aug '17 - May '21

B.A. in Computer Science, B.A. in Statistics GPA: 3.90/4.0 (CS GPA: 3.98)

Awards: Summer Undergraduate Research Fellowships (SURF), The Berkeley Undergraduate Scholarship

Research & Work Experience

Berkeley AI Research – Undergraduate Researcher Feb '19 - Present

- Worked with Prof. Alexandre Bayen and Fangyu Wu on creating trajectory dataset in under-structured road environments.
  - Implemented object detection with Faster R-CNN and RetinaNet for automatically creating bounding boxes for vehicles and pedestrians in top-view traffic environment and tracking with Kalman filtering for creating trajectories.
  - Leveraged trajectories for training an agent for a vehicle in under-structured traffic environments with MPC controllers and reinforcement learning models.
- Worked with Prof. Laurent El Ghaoui on generating extractive summarization with topic-models (e.g. LDA, Sparse PCA).
  - Collaborated with Pacific Earthquake Engineering Research center to generate automatic reports.
  - Implemented topic coverage heuristics and redundancy reduction methods in summaries with unsupervised clustering.

Lawrence Berkeley National Laboratory – Undergraduate Researcher / Research Apprentice Aug '19 – Present

- Worked with Prof. Kevin Bender and Roy Ben-Shalom on finding biophysical parameters of neurons with optimization.
  - Experimented neuron simulation to optimize spearman value and stimulus sensitivity by finding optimal weights for neuron features with different normalization schemes and algorithms (e.g. gradient-based methods, pattern search).

Berkeley EECS Department – Undergraduate Researcher Aug - Dec '19

- Worked with Prof. David Wagner on identifying adversarial attacks on deep learning image classification.
  - Developed a sparsity-invariant version of ResNet to detect adversarial patch attacks by occluding a part of images.

Sumup Analytics – AI Research Intern Apr - Aug '19

- Developed sparse text classifiers and extractive text summarizer tool using sparse Naïve Bayes and topic-modeling and tested the performance on different text corpora and tasks, including sentiment analysis on SEC filings/forms of target firms and abusive/fake post detection on social medias.
- Programmed a topic-based novelty detection code for alerting novel articles on arXiv, an archive for scholarly articles.

PwC Consulting – Software Engineering Intern June - July '18

- Developed a machine learning model that parses clients' international trade documents and categorizes them into trading terms from custom documents with neural network models.
- Programmed a web crawling software that requests JSON data from finance and customs websites, such as exchange rate, cargo tracking, or stock data, and visualize into given forms with Requests, BeautifulSoup and pandas.

Teaching

EECS Department of UC Berkeley– Reader (EE 227BT: Convex Optimization) Aug '19 - Dec '19

Ecole Bilingue de Berkeley– STEAM Intern (under Prof. Alexandre Bayen) Jan '19 - May '19

- Taught Robotics (robot designing / programming) to elementary school students.

EECS Department of UC Berkeley– Lab Assistant (CS 61A) Jan '18 - May '18

Papers

Alicia Y. Tsai , Selim Günay, **Minjune Hwang**, Chenglong Li, Pengyuan Zhai, Laurent El Ghaoui, Khalid M. Mosalam. *Text Analytics for Resilience-Enabled Extreme Events Reconnaissance.* In submission to AI+HADR Workshop @ NeurIPS 2020.

Fangyu Wu, Dequan Wang, **Minjune Hwang**, Chenhui Hao, Jiawei Lu, Trevor Darrell, Alexandre Bayen. *Motion Planning in Understructured Road Environments with Stacked Reservation Grids.* Appeared in PAL workshop @ ICRA 2020. [paper]

Khalid M. Mosalam, Selim Günay, Alicia Y. Tsai, **Minjune Hwang**, Laurent El Ghaoui. *Building Resilience Through Structural Health Monitoring and Reconnaissance.* World Conference on Earthquake Engineering (WCEE) 2020. [paper]

Michael McCoyd, Won Park, Steven Chen, Neil Shah, Ryan Roggenkemper, **Minjune Hwang**, Jason Xinyu Liu, David Wagner. *Minority Reports Defense: Defending Against Adversarial Patches.* Security in Machine Learning and its Applications (SiMLA) 2020. [arXiv / paper]

Presentation

Summer Undergraduate Research Fellowships (SURF) Conference

- Object Tracking for Vehicle Trajectories in Under-regulated Traffic and their applications Aug '20