Website: estherrobb.com
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GitHub: github.com/e-271

Esther Robb

Education

Virginia Tech — Blacksburg, VA
M.S. in Computer Engineering, Bradley Fellowship Scholar — 2019–Current
Advisor: Prof. Jia-Bin Huang — *GPA: 3.66*

Virginia Tech — Blacksburg, VA
B.S. in Computer Engineering — 2016–2019
Magna Cum Laude, Class rank 25/177 — *GPA: 3.71*

Work Experiences

Google Brain — (Remote) San Francisco, CA
Student Research Intern, TF-Agents team — Summer 2020
Host: Sergio Guadaramma

- Improved generalization and performance for adversarial inverse reinforcement learning using a disentanglement of intrinsic and task-specific rewards. Will submit to ICML 2021.

Google Cerebra — Mountain View, CA
Student Research Intern, Sesame team — Summer 2019
Host: Wen-Sheng (Vincent) Chu

- Developed methods to generate novel and high-quality identity- and attribute-conditioned face images with strong identity preservation.

Vision and Learning Lab at Virginia Tech — Blacksburg, VA
Graduate Research Assistant — 2019-Current
Advisor: Prof. Jia-Bin Huang

- Developed novel low-shot GAN domain adaptation methods for high-quality and diverse image generation by uncovering a low-dimensional, expressive, and interpretable parameter space. Submitted to ICLR 2021.
- Improved state-of-the-art long-tail instance segmentation using stochastic regularization. Submitted to AAAI 2021.
- Improved performance on image reconstruction tasks by developing new decoder architectures using neural architecture search. Published in ECCV 2020.

SuperDARN at Virginia Tech — Blacksburg, VA
Undergraduate Research Assistant — Summer 2018
Supervisor: Prof. J. Michael Ruohoniemi

- Improved automatic processing using unsupervised learning, affecting several decades of data on ionospheric conditions collected from dozens of radars worldwide. Research presented in AGU 2018 and SuperDARN Workshop 2018.

Xin Group at Virginia Tech — Blacksburg, VA
Undergraduate Research Assistant — 2016-2017
Supervisor: Prof. Hongliang Xin

- Created an interface for interacting with a regression algorithm which discovers chemical catalysts and creating visualizations. Research published in ACS 2018.

Rincon Research Corporation Chantilly, VA
Computer Engineering Intern Summer 2017

- Led a team of interns developing high-precision GPS positioning on new Android hardware.

Publications

Few-shot Adaptation of Generative Adversarial Networks ICLR 2021
Esther Robb, Wen-Sheng Chu, Abhishek Kumar, Jia-Bin Huang *Under review*

DropLoss for Long-tail Instance Segmentation AAAI 2021
Ting-I Hsieh*, Esther Robb*, Hwann-Tzong Chen, Jia-Bin Huang

NAS-DIP: Learning Deep Image Prior with Neural Architecture Search ECCV 2020
Yun-Chun Chen, Chen Gao, Esther Robb, Jia-Bin Huang

Classifying SuperDARN Backscatter using Machine Learning Algorithms AGU 2018
Esther Robb, Xueling Shi, Shibaji Chakraborty, J Michael Ruohoniemi, Joseph BH Baker, Maimaitirebike Maimaiti

Machine-learning energy gaps of porphyrins with molecular graph representations ACS 2018
Zheng Li, Noushin Omidvar, Wei Shan Chin, Esther Robb, Amanda Morris, Luke Achenie, Hongliang Xin

Projects

Analysis of Cambridge Analytica coverage
Big Data Text Summarization senior design project
Generate analysis and a single-page summary of over 10,000 news reports of the Cambridge Analytica security breach event using supervised and unsupervised natural language processing methods. *vtechworks.lib.vt.edu/10919/86395*

Integrated embedded system design
Embedded Systems senior design project
Led a team of students in building an integrated robotic game using 4 microcontrollers, two rover platforms, a robotic arm, WiFi communication, and various sensors and peripherals. *youtu.be/L4DLoqMPopM*

Scholarships and Awards

Bradley Graduate Fellowship 2019-Current
Tuition coverage and stipend awarded to top U.S. graduate students

Google Summer of Code Summer 2018
Grant awarded to the top 2 proposals for an open-source research project

Dean's List 2016-Current
Awarded to students based on GPA

Extracurricular Activities

Volunteer for Habitat for Humanity 2016–2017

- *Worked with experts and student volunteers to construct houses for local families.*

Volunteer for The Campus Kitchen 2017–2018

- *Distributed food to families at a local food pantry.*

Volunteer for FIRST Robotics 2016

- *Assisted middle school students with science project presentations at a robotics competition.*