Thomas Davies

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EDUCATION

QUEEN'S UNIVERSITY | B.ASc Electrical Engineering — Kingston, Ontario | 2012 - 2016
GPA: 3.74/4.3

LEEDS UNIVERSITY | Exchange Program — Leeds, England | Jan 2015 - Apr 2015
GPA: 3.8/4.0

WORK EXPERIENCE

AUTODESK | Machine Learning Research Engineer — Toronto, Ontario | September 2016 – Present

- Developing deep model architectures for exploring latent space of large datasets of 3d geometries
- Guiding the adoption of research into existing product lines, through UX and engineering channels
- Designing efficient machine learning pipelines for scalable deployment and integration
- Tech lead managing all engineering tasks and timelines of team
- Developing tools and workflows for scalable data pre-processing and wrangling
- Developed deep models for generalized robotic assembly

QUEEN'S SPACE ENGINEERING TEAM | Chief Engineer — Kingston, Ontario | September 2013 – 2016

- Managed a multi-disciplinary team of over 30 members to design a lunar rover for competition
- Placed 1st in Canada, 2nd in North America, and 6th Globally out of 60 competing teams
- Lead developer for rover control system, communication protocols, and automation functionalities
- Directly involved in all decisions on mechanical, electrical, science and logistical groups

SKILLS

Programming Languages	Javascript, NodeJS, React, Python, C/C++, Tensorflow, Scikit-learn
Machine Learning	Multi-view CNNs, GANs, Auto-encoders
Machine Learning Deployment	Tensorflow serving, Lambda, EC2, Docker, Sagemaker, s3

PROJECTS

BRICKBOT | Tensorflow, Python, Amazon Web Services (S3, EC2), Robotics, CNN's
Significantly simplify the setup of robotic assembly systems by enabling interaction with robots at the task level abstraction by using sensors and deep learning to infer how to accomplish the task and adapt accordingly. Media coverage by Fast Company: https://www.fastcompany.com/90204615/autodesks-lego-model-building-robot-is-the-future-of-manufacturing.

SHAPE-BASED TECHNIQUES FOR EXPLORING DESIGN SPACES (PATENT PENDING) | Python, Tensorflow, Amazon Web Services (S3, ec2, sagemaker)
Generative design is an emerging method in which one or more objectives are defined as goals and constraints and many designs are synthesized that meet the various stated objectives. In order to fully explore the tens, hundreds, or potentially thousands of generated outcomes, a user must analyze the unique benefits of each outcome across many dimensions. This project explores and produced various methods of generating shape embeddings through deep learning for the purpose of clustering and comparison of aesthetics within the generative design space.

AWARDS

CLUB OF THE YEAR Queen's University Alma Matter Society | 2016
Club of the Year is awarded to the club that has exemplified the spirit of Queen's and the clubs community through performing at an exceptional level.