Asha Anoosheh

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Education

ETH Zürich   Graduated 2018
   Master's of Science, Robotics   *GPA: 5.43 / 6*

University of California, Berkeley   Graduated 2016 with Dean's Honors
   Bachelor of Science, Electrical Engineering & Computer Science   *GPA: 3.74 / 4*

Research Experience

** Publications **

1. **A. Anoosheh**, T. Sattler, R. Timofte, M. Pollefeys, L. Van Gool. Night-to-Day Image Translation for Retrieval-based Localization. 2018.   Submitted to ICRA 2019 (link)
2. **A. Anoosheh**, E. Agustsson, R. Timofte, L. Van Gool. ComboGAN: Unrestrained Scalability for Image Domain Translation. 2017.   Available in ICLR 2018 and CVPR 2018 (link)
3. N.M. Ho, E. Manogaran, W.F. Wong, **A. Anoosheh**. Efficient floating-point precision tuning for approximate computing.   Published in ASP-DAC 2017 (link)

ETH Computer Vision Laboratory   (Sep 2017 – Sept 2018)
- ❖ Master's Thesis: Investigating use of GANs to tackle self-driving localization under different light/weather conditions
- ❖ Lead experiment to efficiently transfer between multiple data domains using adversarial models

ETH Computer Vision & Geometry Group   (Nov 2016 – May 2017)
- ❖ Research assistantship for estimating restricted motion of objects from multiple 3D point-clouds

International Computer Science Institute   (Feb – Sep 2016)
- ❖ Experimented effectiveness of complex-valued neural networks on fMRI reconstruction and SAR identification
- ❖ Devised a visual question-answering algorithm for quantifying symmetry in images

Self-Motivated Research   (Aug 2015 – Jul 2016)
- ❖ Exploring use of Deep Q-Learning for autonomous vehicle control using visually-rich driving simulation
- ❖ Authored a paper on the speedup of distributed neural nets via IPC compression
- ❖ Implemented the Graph Neural Network (Scarselli '09) in Torch for use in traffic prediction

Berkeley Institute for Data Science   (Jan 2015 – Jan 2016)
- ❖ Performed web scraping, storage, analysis, and learning of textual and image data from specific commodities

National University of Singapore   (Aug – Dec 2014)
- ❖ Research approximate computing using floating-point precision tuning and its effects on FPGA performance

Work Experience

Google / Nest – Palo Alto, CA   *Software Engineering Intern*   (May – Aug 2015)
- ➢ Created backend for an internal tool for automating mobile app UI alteration and exploration
- ➢ Helped develop a page-object framework for self-navigating Android, iOS, and web applications

NVIDIA – Santa Clara, CA   *Software Engineering Intern*   (May – Aug 2014)
- ➢ Worked on Android Platform Team to customize, debug, and add features to AOSP framework for Nvidia devices
- ➢ Implemented dynamic region-based package management and customized filesystem for external storage
- ➢ Assembled a custom Android file manager, generalized for future personalization

Intertrust Technologies – Sunnyvale, CA *Software Engineering Intern*   (Jun – Aug 2013)
- ➢ Developed an NFC security library and application on Android platform for internal company projects
- ➢ Implemented front-end cloud storage data transfer used by the Kabuto collaboration platform

Skills & Knowledge

- <u>Languages</u>: C, Python, Java, C++, CUDA, OpenCL, Ruby, JavaScript, R, SQL
- <u>Software</u>: Tensorflow, Caffe, Torch/PyTorch, H2O, Spark, Hadoop, OpenMP, MATLAB, Multisim, Node.JS
- <u>Mathematics</u>: Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math, Combinatorics
- <u>Electrical Engineering</u>: Microelectronic Circuits, Signals & Systems, Convex Optimization
- <u>Physics</u>: Astrophysics, Quantum Mechanics, Relativity, Kinematics, E&M, Optics

Relevant Courses and Projects

<u>Machine Learning:</u>
Natural Language Understanding (2017)
- Built an LSTM-based conversational agent as class project, adding a bidirectional, dynamic encoder and attention

Statistical Learning Theory (2017)
- Information Theory, Variational Methods, Gibbs Distribution, MCMC, Validation Theory, Annealing, Mean-fields

Deep Learning (2017)
- Function approximation theory, Subspace-partitioning, RNNs, Factor models, Undirected Graphical Models

Advanced Topics in Machine Learning (2016)
- Variational nets, Combinatorial & Strategic optimization, Riemannian manifolds, Deep-RL, Bandits, Causality

Machine Learning (2015)
- Implemented Linear/Logistic Regression, kernel methods, PCA, Neural Nets, unsupervised and scalable learning

Artificial Intelligence (2015)
- Implemented CSPs, MDPs, RL, Bayes Nets, GMM, HMMs, Decision Trees, MiniMax, and SVMs in projects

<u>Computer Vision and Image Processing:</u>
Vision for Mobile Robotics (2016)
- Built a Visual-Odometry pipeline from scratch, utilizing monocular SFM for KITTI driving data

Computational Regularity (2016)
- Group Theory, Symmetries, detection, and completed a custom project quantifying semantic symmetry

Traditional Computer Vision (2016)
- Performed transformations, feature extraction, tracking, segmentation, model-fitting, & multi-view reconstruction

Modern Computer Vision (2016)
- Devised CNN-based optimization for morphing images based on classification as custom project

Image Manipulation and Computational Photography (2015)
- Assembled a pipeline for processing and identifying new supernovae using the KAIT telescope (Custom project)

<u>Robotics:</u>
Theory of Robotics and Mechatronics (2016)
- Screw Theory, Forward/Inverse Kinematics, Jacobian, Force Control, Trajectory Generation, Micro/Nanorobotics

Rehabilitation Engineering (2017)
- Actuators and sensors, Human motor system, Exoprosthesis, Orthotics, Robot-aided therapy, Neuroprosthetics

Virtual Reality (2017)

<u>Computer Science:</u>
Computer Graphics (2016)
- Created a General-Relativistic raytracing program (for black holes) as custom project

Parallel Computing and Software (2015)
- Initiated a custom project which successfully sped up large-scale distributed neural-nets via IPC reduction

Computer Security (2015)
Efficient Algorithms and Intractable Problems (2014)
Operating Systems and Systems Programming (2014)
Database Systems (2014)
Computer Architecture (2013)
Data Structures and Interpretation of Programs (2012)