Mitchell H. Baller
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Education

M.S in Computer Science, **Georgia Institute of Technology** August 2021 - December 2023
Computational Perception and Robotics Concentration
B.S. in Computer Science, **Case Western Reserve University** August 2013 - May 2017

Experience

Circle Optics, Rochester, NY (remote) January 2024 - Present
Software Engineer — Imaging Science
- Wrote high-performance c++ camera control software able to capture and process images at 20 Gigabits per second
- Developed proof of concept processing pipeline to validate 360 camera system's advantages for 3D reconstruction including SIFT and SURF feature detectors and a YOLO model for detecting and masking out the camera operator
- Benchmarked, evaluated and integrated vendor camera sensors and SDKs for new product lines into custom software suite
- Leading effort to port Microsoft Visual Studio C++ codebase to embedded linux compatible cmake build system

Software Engineering Co-op – Imaging Science May 2022 - December 2023
- Developed and implemented method for calibrating telescope assembly at close range using Zhang's calibration model
- Wrote algorithm for aligning novel lens assemblies by evaluating captured images of MTF targets in Python and C++
- Wrote REST API with Rust for controlling camera system and monitoring temperatures and alerts

Eaton Corporation, Cleveland, OH July 2019 - August 2021
Software Engineer
- Rewrote in-house pay statement application to support divesting employees and provide uninterrupted access to pay info
- Wrote software for 3 sprint teams. Bugfixes and features in Java and JavaScript to Oracle and Adobe platforms
- 1st place in internal hackathon to prototype machine power draw monitoring and supervisor alert system

IT Functional Analyst — Leadership Development Program (LDP) July 2017 – July 2019
- Led contact center reporting refresh during platform upgrade to improve dashboard and metric effectiveness
- Deployed, configured, and led testing for 22 Cisco contact centers in the US, Europe, and Asia
- Nominated to be campus recruiter, manager for summer intern and mentor for first year LDP

Summer IT Intern May 2016 – August 2016
- Designed and implemented physical plant inventory scheduling tool using Visual Basic still in use 6 years later

Texas Tech University Department of Computer Science, Lubbock, TX May 2015 - August 2015
Researcher — NSF Research Experience for Undergraduates Summer Program
- Storing and querying large network traffic datasets with Apache Hive in order to predict network attacks
- Proposal presentation, progress reports, and poster session to lab mentor, graduate students, and professors

Relevant Coursework

Computational Photography and Computer Vision
- Implemented Seam carving for content-aware image resizing, Object removal by Exemplar-Based Inpainting
- Project work in video texture analysis, High Dynamic Range (HDR), Panorama stitching, and pyramid blending
- Image compression with discrete Fourier transform, object detection with Harris corners, Optical flow analysis
- Coursework implemented in Python using OpenCV, Numpy, Scipy, Pytorch etc.

Artificial Intelligence
- Implemented pathfinding algorithms: BFS, UCS, A*, Bi-directional UCS, Bi-directional A* and Tri-directional UCS
- Built AI game player for skid isolation using MiniMax, Iterative deepening, alpha beta pruning

Operating Systems and Advanced Operating Systems
- Built multithreaded proxy server, multithreaded get file server and distributed file system with C and C++
- Coursework in processes, threads, scheduling, memory management, IPC, Virtualization, RPC

Machine Learning
- Project work examining common Supervised, Unsupervised and Reinforcement learning algorithms
- Decision Trees, Neural networks, K-nearest neighbors, Genetic Algorithms, Simulated Annealing, Dimensionality Reduction