Kaden Strand

Personal Information

Fort Collins, Colorado
Phone: 970-420-3345
E-mail: kadenjstrand@gmail.com
LinkedIn: linkedin.com/in/kadenstrand
Blog: medium.com/@kaden_strand

Skills

- Proficient: Python, Java, C#, Unity3D
- Familiar: C++, C, JavaScript
- Web: HTML, CSS, A-Frame, Three.js, GWT
- Embedded & Low-level: SystemC, Assembly (MIPS, FeeScale 68HC12), Verilog HDL
- OpenCV, NumPy
- MATLAB / Simulink
- RAPID (ABB Robotics)
- Bash, PowerShell

Education

2012 - 2016
Colorado State University,
B.S., Computer Engineering *cum laude*
B.S., Computer Science *cum laude*
Mathematics Minor

- Computer Engineering Discipline Honors Scholar
- Dept. of Electrical & Computer Engineering Academic Achievement Award
- College of Natural Sciences Academic Enrichment Award
- GPA 3.88

Selected Courses

Image Computation (Graduate)
HW/SW Design of Embedded Systems (Graduate)
Intro to Analysis of Algorithms
Intro to Machine Learning
Intro to Computer Graphics
Computer Networks
Computer Architecture
Problem Solving with C++
Linear Systems Analysis I, II
Digital System Design
Communications Principles (Engineering Statistics)
Intro to Ordinary Differential Equations
Linear Algebra
Advanced Calculus of One Variable (Real Analysis)

Experience

3/1/16 - present
Chief Executive Officer, *Blue Penguin LLC*
Founder, lead development for new B2B custom solutions company creating specialized software and enabling new research with virtual and augmented reality technologies. Projects and Contributions:

- Sanofi Pasteur *Healing Power of Perception*: Led team to develop Microsoft HoloLens experience for the world's largest vaccine company to explore and showcase how mixed reality may be used in multiple company contexts including supply chain management, scientific visualization of structural chemistry, and digital therapeutics. Finished experience was presented to senior leadership and delivered globally to Sanofi Pasteur research sites.
- Colorado State University *CSU Immersive Experience*: Created narrative experience to promote mixed reality university goals using the Vive headset and Leap Motion hand gesture input. Published application for mobile VR on Android, iOS, Oculus Go.
- Trilogy Partners: Produced interactive home architecture demonstration, presented with HP Inc. at the Breckenridge Film Festival.
- CSU Psychology: Provided research support for multiple projects including "Healthy Environments for the Aging Brain" team, movement & perception study, and walkable spaces study in partnership with City of Fort Collins Planning Dept.
- Contributed open-source WebVR component for chemical visualization extending NGL.
- Invited to demonstrate technology at Biomedical Advanced Research Development Authority; Speaker at Microsoft Mixed Reality Developer Summit, Denver Startup Week, Breckenridge Film Festival, and CSU RamReality events; organized VR event for Fort Collins Startup Week.

4/25/16 - 3/1/17
Virtual Reality Initiative Project Lead, *Office of the Vice President for Research, CSU*

- Led new initiative reporting to the Vice President for Research at Colorado State University to incorporate modern virtual and augmented reality technologies across wide scope of university missions including research, curriculums, and communications.
- Executed first University-led VR Hackathon in Colorado and planned VR Symposium with expert speakers from across the country.
- Developed cross-disciplinary team comprising four interns from Digital Art, Computing Technology, and Interior Design to create the "CSU Virtual Reality Museum of Student Art."
- Helped plan strategic roadmap for mixed reality integration for multiple colleges and departments.

2/16/16 - 6/10/17
Computer Vision Software Engineer, *Amadeus Consulting*

- Consultation work to implement a proprietary computer vision solution.
- Development included image filtering, application of custom sub-pixel edge detection algorithms, and mathematical techniques such as PCA and error analysis.

6/8/15 - 8/14/15
StoreVirtual Test Intern, *HP Enterprise*

- Engineered and conducted initial implementation of a new factory reset process for the next generation of StoreVirtual hyper-converged systems.
- Rapidly learned a particular build process and functioned as interim lead engineer for that process.

10/18/13 - 8/22/14
Software Engineer Intern, *Bounce Software*

- Contributed to all aspects of product development as member of small software team: met with clients, created mock-ups of potential products, designed software features, wrote production code, researched new software methods.

5/20/13 - 8/16/13
Software Engineer Intern, *Ricoh*

- Developed web app for test automation lab designed to transfer command line functionality to a visual web interface.
- Prototyped parallel scheduler program to increase automation and efficiency of test distribution across lab computers.

University Projects

Object Detection, Tracking, & Action Recognition System
Developed computer vision program to detect and classify moving objects and human actions. Developed foreground/background segmentation, feature detection and tracking components. Applied algorithms including MOG, Mosse filter, Kalman filter, SIFT, RANSAC, HOG, SVM, PCA. *Semester Project, Image Computation*

Ray Tracing System
Developed ray tracing software without the use of graphics libraries to produce realistic, computer-generated images with color, lighting, reflections, shadow, and anti-aliasing for arbitrary mesh input. Prioritized test-driven development utilizing JUnit testing framework. *Capstone Project, Computer Science*

EcoCar3 Advanced Vehicle Technology Competition
Worked with a cross-disciplinary team comprising electrical, computer, and mechanical engineering students to develop the vehicle control system during the second year of the EcoCar3 four-year competition. CSU competed among 16 universities to develop the best performing and most environmentally friendly hybrid electric vehicle. Our team used MATLAB and Simulink to implement algorithms for hybrid drivetrain control and integrated our work into a 2016 Chevrolet Camaro. *Senior Design Project, Computer Engineering*

Wolf Robotics, Project *Wolf Eye*
Year-long design project with Wolf Robotics LLC to create and implement an efficient, repeatable, and automated method to accurately calibrate a robotic arm in 3D space using a laser distance sensor. Implemented program on an ABB six-axis robotic arm onsite at Wolf Robotics using the RAPID language. Wolf Robotics incorporated the calibration method into production industrial welding systems to improve the speed of detecting weld features.

Voice-Enabled System for Power Allocation (*VESPA*)
Developed voice-activated power outlet system for smart home environment. Transmitted data via AC powerline, removing dependency on radio technology. *Semester Project, HW/SW Design of Embedded Systems*

Outerplanar Embedding Algorithm
Worked under direction of Dr. Ross McConnell to implement novel algorithm for outerplanar graph embedding in O(edges) timebound. *Semester Project, Honors Program*