AdaRosa

Goal

I want to work with cool people to build computers that understand and help.

Basic

Computer Science
University of Illinois
Chancellor Scholar
3.7 GPA, 2018
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interests

I build Mixed Reality Biomedical Cyber-Physical-Human-Systems. hci, gamification, accessibility, virtual reality, iot, robotics, machine learning, natural language processing, computer graphics, virtual reality

tools

C#, Virtual Reality, Typescript, OpenGL, Mathematica, Unity3D, C, ROS, OpenCV, RealSense, HTML5, OpenCL, Java, Arduino, node.js, Haskell

projects

2013–Now **AutoChair : An eye controlled self driving robotic wheelchair** — It's a nursing home on wheels.

Designed and created solo to restore my Grandma's ability to interact with the world.

- prototypes, simulation, and automatic testing with C#+Unity3d, and Wolfram
- safe, highly redundant, distributed system architecture
- novel holonomic drivetrain for unparalleled mobility
- eye tracker hw+algorithm using Python, OpenCV
- telepresence interface, high performance optical flow
- innovative eye-controlled HCIs, multi-player games, and remote monitoring system with HTML5, JS, Typescript, WebGL, Node.js, Socket.IO
- custom quadrature encoders and motor controllers DSP, Arduino
- ROS plugin-play system for automatic customization
- novel performant terrain classification algorithm Wolfram, C#, C++, Kinect
- 1-Arduino 12-ultrasound parallel array with multi-path protection in C
- system for interfering with devices (tv, phone) using eyes, C#
- algorithm to measure stress, game theory to reduce

2016–Now **VROS : A Platform for Virtual Reality Creation + Collaboration** — Won Hack Illinois Usability Award

Right now, I am the only developer, but I collaborate with many people to met needs.

- Allows people to create and collaborate in virtual environments
- Hand tracking, voice chat, Windows Apps, integrated web browser
- control real robots and industrial machines, view MRIs
- Supporting the VR course, a DARPA project, and the HCES medical trainer
- Allows anyone to naturally create environments and script them.

experience

2015–Now **Researcher at Motion Strategy + Virtual Reality Laboratory** — UIUC

Developed a GPU stitching algorithm for VR, as well as software that allows high-performance rendering of depth.

2016 **Teaching Assistant Virtual Reality Course** — UIUC

Developing software to allow the class to be taught in VR.

2016 **Nod Labs Software Engineering Intern** — Mountain View

Worked on team of 25, Improved perforce (by a factor of 20) by using OpenCL. Dived into code base, and developed solo a GPU powered high performance tracking algorithm.

2012–2013 **Head of Titan Robotics Programming** — Illinois Mathematics and Science Academy

recruited, trained, and led team; highest autonomous score in Midwest regional.

2014–2015 **Assistive and Rehabilitation Robotics Laboratory** — Northwestern University

Developed a real-time distributed system that coordinated hundreds of processes across several computers.

2012-2015 **Digital Forces Corporation** — Illinois

Programmed a Raspberry Pi to track and bill trucks using RFID and OpenCV.

honors

2014 **Presented AutoChair at ROSCon** — Open Source Robotics Foundation

2013 **Student Representative to British Consulate** — Raspberry Pi for STEM

2016 **Campus Honors Program** — University of Illinois Urbana-Champaign

2015 **James Scholar** — University of Illinois Urbana-Champaign

2014 **Demo Pitch Prize** — Theil Foundation