Dennis Shtatnov

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Skills

Technologies: Android, Linux, Node.js, SQL, Kubernetes, CUDA, ROS, Git, MongoDB, CockroachDB
Libraries: OpenGL, OpenCV, Eigen, PCL, NumPy, SymPy, jQuery, React, AngularJS
Languages: Bash, C/C++, CSS, Go, Haskell, HTML, Java, Javascript, Matlab, PHP, Python

Experience

Co-Founder / Software Architect — Lemma Inc. <http://lem.ma/>
Philadelphia, PA — March 2014 - present

- Creating an online education platform that improves upon existing systems by integrating all subjects into a graph of topics with lessons personalized by a user's performance.
- Built the backend server using Kubernetes, Node.js, CockroachDB
- Applied symbolic computation in Python using SymPy for automatic grading and smart feedback.
- Designed a front end Google-Docs style WYSIWIG for content creation and a MathBox for interaction input of Math expressions
- Developed user tracking and analytics tools within a web browser and the data collection system.

Computer Vision Researcher — Drexel University
Philadelphia, PA — December 2014 - January 2016

- Researched methods for multi-view stereo and material recognition.
- Experimented with MRFs, PCA, and ANN for spatial labeling and segmentation.
- Optimized code for running on large clusters using parallel processing and CUDA.

Teaching Assistant — Drexel University
Philadelphia, PA — January 2014 - April 2015

- Helped students directly in debugging code and solving problems.
- Managed groups of TAs in completing grading on time and in creating assignments.
- Developed testing scripts for verifying code correctness and grading.

Projects

Personal & Open Source Contributions

- **Robotic Chalkboard** - Built the hardware and software for a 3axis chalkboard mounted plotting machine for drawing SVGs using chalk. (see website for cool videos)
- **Tansa** - Started an open source quadcopter simulation and control library. Core written in C++. Mixed integer convex optimization of trajectories. Frontend interface in WebGL. Build an open source optical motion capture system using bundle adjustment, and other image processing techniques.
- **PX4 Autopilot** - Ported over the Crazyflie 2.0 platform to work with the autopilot. Fixed bugs in low level embedded systems code.
- **MVision** - Created an open source realtime SLAM algorithm for Android phones based on the MSCKF method (Mourikis et al)
- **SymPy** - Created a parser for interprating LaTeX using custom grammars and heuristics.
- **FFTS** - Fixed bugs in an open source FFT library for NEON/SSE machines.

Hackathons

- Dragon Hacks - 1st Place - Gaze and Myo controlled quadcopter interface.
- Penn Apps - Made a physical game of pong with a quadcopter as a ball and phones as paddles.
- Philly Codefest - Made an Android Wear handshake app for exchanging contacts.

Education

edX (see website for certificates) — Online