

# RUSLAN KURDYUMOV

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## EDUCATION:

9/10-4/12

**Stanford University**, Stanford, CA

- M.S. Mechanical Engineering, concentrations in Controls, Mechatronics, Robotics (GPA 3.8/4.0)
- Courses in Mechatronics, Autonomous Robot Control & Localization, Convex Optimization, Machine Learning, System Identification, Vehicle Dynamics & Control, Nonlinear Control

9/06-6/10

**California Institute of Technology**, Pasadena, CA

- B.S. Mechanical Engineering, B.S. Business Economics and Management (graduated with Honors)

## EXPERIENCE:

8/17-8/18

**Contract Software Engineer**, Planning and Controls, Waymo via Adecco, Mountain View, CA

- Implemented software to enable self-driving car motion control complete testing and verification
- Conducted extensive vehicle system identification and implemented system models in simulation software
- Designed and optimized control algorithm for braking during hydraulic failure (US patent 10710565)
- Implemented software to verify on-road degraded vehicle behavior and analyze large scale test results

8/16-7/17

**Contract Mechanical Engineer**, Waymo via Adecco, Mountain View, CA

- Lead mechanical engineer on self driving car compute system
- Designed, manufactured and optimized next-gen compute system, supervised build and assembly in China
- Interfaced with vendors, machine shops, manufacturers, and primary Chinese assembly contractor
- Designed and optimized cooling and mounting for challenging high-heat components

4/12-8/15

**Mechanical Engineer**, Nikon Research Corporation of America, Belmont, CA

- Project manager for a \$1M high visibility, path-critical R&D lithography project – oversaw mechanical, electrical, software, and systems development and worked on each as needed
- Invented new control system structures and compensation methods for future lithography motors with extremely demanding performance specs
- Invented and simulated novel commutation algorithms for future lithography; led implementation on a POC
- Wrote Matlab and Simulink models to efficiently evaluate novel commutation algorithms – balanced competing mechanical, systems, and control requirements to find an optimal solution
- Re-wrote real-time trajectory tracking code in C for laser radar proof of concept
- Designed, analyzed, and built new lithography structures for several R&D projects – very challenging specifications involving thermal expansion, vibration modes, and minimal mass

12/10-4/12

**Graduate Research Assistant**, Ginzton Lab (Advanced LIGO Project), Stanford, CA

- Tuned control loops to improve seismic isolation performance of a 2-stage 12-DOF platform
- Using Simulink and C, implemented real time sensor blend filter switching, installed in LIGO observatories

## SKILLS:

- **Programming:** C, C++, Python, PIC Assembly, Matlab, Mathematica, R
- **Software:** ANSYS, CATIA, Git, LabVIEW, MathCAD, MPLAB, OrCAD Capture, MS Project, ROS, Simulink, Star-CCM+, Solidworks, Subversion, VxWorks
- **Mechatronics:** electrical design, embedded programming, motor control, machining (lathe/mill)
- **Languages:** Russian (fluent), Spanish (advanced), Japanese (beginner)

## HONORS/ACTIVITIES:

- Head Organizer, campus-wide lecture by Dr. Francis Collins, current NIH Director (2008-2009)
- Member, Caltech NCAA D3 Basketball Team - balanced rigorous academic schedule with 20+ hrs/week of practice, travel and games (2008-2010)

## COMMUNITY SERVICE:

8/12-current

**Building Leader**, Adopt a Building, City Impact, San Francisco, CA

- Lead a team of volunteers who visit a low-income housing building every Sunday

9/07-5/08

**Tutor/Soundboard Engineer**, Hillside's Home for Children, Pasadena, CA

- Tutored 7<sup>th</sup> grader in English, Spanish, History, Math and Science; ran soundboard for student bands