RUSLAN KURDYUMOV

556 Waller St. • San Francisco, CA 94117 • 916.880.0312 • ruslan88@gmail.com

---

EDUCATION:

9/10-4/12   **Stanford University**, Stanford, CA
- Master of Science in Mechanical Engineering
- Concentrations: Controls, Mechatronics, Robotics
- Courses in Mechatronics, Autonomous Robot Control & Localization, Convex Optimization, Machine Learning, System ID, Vehicle Dynamics & Control, Nonlinear Control
- GPA – 3.8/4.0

9/06-6/10   **California Institute of Technology**, Pasadena, CA
- Bachelor of Science in Mechanical Engineering, Bachelor of Science in Business Economics and Management

EXPERIENCE:

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 (patents in progress)
- Invented and simulated novel commutation algorithms for future lithography motors (patents in progress), and led implementation on a proof of concept
- Wrote Matlab and Simulink models to efficiently evaluate novel commutation algorithms – balanced competing mechanical, systems, and control requirements to find an optimal solution
- Designed, analyzed, and built new lithography structures for several R&D projects – very challenging specifications involving thermal expansion, vibration modes, and minimal mass
- Developed advanced structural and thermal FEA methods, adopted by Nikon engineers in Japan

12/10-4/12   **Graduate Research Assistant**, Ginzton Lab (Advanced LIGO Project), Stanford, CA
- Developed advanced control techniques to improve the performance of a 2-stage 12-DOF isolation platform
- Designed and implemented automated sensor blend filter switching capability, installed in observatories
- Tested and designed structural hardware for Advanced LIGO using FE modal analysis
- Wrote a complete report on strut arrangements – several design modifications were implemented

7/10-9/10   **Planetary Robotics Lab Intern**, Jet Propulsion Laboratory, Pasadena, CA
- Developed an adaptive control system for a 6 degree of freedom robotic arm
- Wrote and debugged state machine software modules for robotic grasping, control and force sensing
- Demonstrated ability to adaptively write on surfaces of different stiffness

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
- **Controls**: adaptive control, digital control, feedforward, system modeling & identification
- **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)
- National Association of Basketball Coaches Honors Court (2009 &2010)
- Member, Caltech NCAA D3 Basketball Team - balanced rigorous academic schedule with 20+ hrs/week of practice, travel and games (2008-2010)

COMMUNITY SERVICE:

9/07-5/08   **Tutor/Soundboard Engineer**, Hillsides Home for Children, Pasadena, CA
- Tutored 7th grader in English, Spanish, History, Math and Science
- Ran soundboard for two student bands and helped tune instruments