Soohyun Yoo

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Education

Oregon State University — Corvallis, OR
B.S., Computer Science (3.38/4.0 GPA) — Sep 2011 - Jun 2015

Work Experience

SpaceX — Hawthorne, CA
Hardware Development Engineer II — Apr 2018 – Present

- Key member of the Lifecycle Engineering Team responsible for development of new tools and sustainable engineering processes. Heavy focus on nurturing effective use of JIRA and Confluence to reduce cost of context switching and facilitate knowledge sharing between teams.
- Shared team responsibilities include production support for all Dragon 1 avionics and >90% of Falcon 9 avionics, as well as providing surge support for other vehicle programs. Team of 10.

Hardware Development Engineer — Dec 2015 – Apr 2018

- Completed design and validation of:
  - Four Xilinx UltraScale+ compute platforms built around a common "core block". Project kickoff to flight hardware validation completed in under one year. Co-designed with one other hardware design engineer, with tight coordination with procurement, manufacturing, software, FPGA, and program management teams.
  - A general-purpose network switch, now part of Falcon, Dragon 2, Starship, and satellites
  - A Secure GPS receiver, integrating a Selective Availability Anti-Spoofing Module (SAASM) provided by a third-party vendor, along with crypto key load procedures.
- As a Responsible Engineer, led design reviews and completed multiple qualification campaigns (shock, vibration, thermal, EMC, and radiation testing).

Avionics Intern – RIO Team — Oct 2013 – Mar 2014, Jul – Dec 2015

- Developed software tools now used throughout Avionics to test anything with a processor and digital interfaces, with emphasis on performance and reliability.
- Supported confidence qualification of the Dragon 2 Flight Computer, as well as qualification of the Falcon Flight Computer leading up to the Falcon 9's return-to-flight launch and landing in Dec 2015.
- Implemented a PCIe Ethernet switch for radiation testing and evaluated an optoelectronic transceiver.

OSU Robotic Decision Making Laboratory — Corvallis, OR
Research Assistant — Jun 2014 – Jun 2015

- Implemented an adaptive receding horizon explorer for an autonomous surface vehicle. Tested quadrotors in cooperative multiagent indoor exploration. Published to FSR and ICRA.

OSU Open Source Laboratory — Corvallis, OR
Student Developer — Feb – Oct 2013

- Developed an administrative Python backend into an existing Drupal web framework and frontend for the Oregon Virtual School District. Team of 15.

OSU Dynamic Robotics Laboratory — Corvallis, OR
Programmer — Sep 2011 – Oct 2013, Apr – Jul 2014

- Assembled software system using ROS and Orocos for ATRIAS, an EtherCAT-enabled bipedal robot. System runs modular, hard real-time 1 kHz controllers in Xenomai-patched Linux, wirelessly controlled through a GTK+ GUI with onboard and remote logging. Team of 5.

Clubs & Activities

OSU Robotics Club Autonomous Aerial Team — Corvallis, OR
Team Lead, Programmer — Sep 2011 – Jun 2015

- Developed avionics, flight firmware using direction cosines for kinematic control, and worked with basic object recognition and third-party 3D SLAM and navigation software. Organized budgets and schedule.

Skills & Misc. Exp.

Software: C, C++, Python, Git, Linux (Arch, Ubuntu), JIRA/Confluence

Electrical: High-speed digital design (Ethernet, SGMII, PCIe), intermediate power supply design, basic RF & mixed signals, Altium