Kristof Richmond

Research   Sensing, estimation and control for exploration robotic vehicles. My current focus is on applications of vision to underwater mapping and navigation.

Education   Stanford University, Stanford, California
- Ph.D., Mechanical Engineering.
  Thesis: Real-time Underwater Visual Mosaicking and Navigation.
  Adviser: Steve Rock.
- M.S., Mechanical Engineering, June 2001.

Rice University, Houston, Texas
- B.A., German, May 1997, *cum laude*.
- B.S. Mechanical Engineering, May 1997, *cum laude*.

Publications   **Real-time visual mosaicking and navigation of the USS *Macon*.** Kristof Richmond and Stephen Rock. In *Proceedings of the Unmanned Untethered Submersible Technology Conference (UUST)*, Durham, NH, Aug 2007. AUSI.

An operational real-time large-scale visual mosaicking and navigation system. Kristof Richmond and Stephen Rock. In *Proceedings of the MTS/IEEE OCEANS Conference*, Boston, Sept 2006. IEEE.

A real-time visual mosaicking and navigation system. Kristof Richmond and Stephen Rock. In *Proceedings of the Unmanned Untethered Submersible Technology Conference (UUST)*, Durham, NH, Aug 2005. AUSI.

Automatic determination of vision lock on the seafloor in the presence of dust. Kristof Richmond, David Black-Schaffer and Stephen Rock. In *Proceedings of the Unmanned Untethered Submersible Technology Conference (UUST)*, Durham, NH, Aug 2003. AUSI.

Experience   **Research Assistant**
Stanford University, Aerospace Robotics Lab
Stanford, California   2001-Present
- Developed and deployed novel sea floor mapping and navigation system for routine use with remotely operated underwater vehicles of the Monterey Bay Aquarium Research Institute.
- Developed automation and control systems for underwater vehicles.
- Developed low-level communications, vision, and driver software for laboratory robotic systems.

Teaching Assistant
Stanford University
Stanford, California Spring, 2002
- Assisted Prof. Sanjay Lall with ENGR207b: Modern Control.
- Held lectures in professor's absence, assisted in developing and grading coursework.

Technician

SRI International, Sondrestrom Atmospheric Research Facility,
Kangerlussuaq, Greenland   1997-2000
- Responsible with three other site crewmembers for operations, maintenance, and repairs of one-of-a-kind scientific instruments and other facility equipment.
- ☐Developed and implemented steering control system for 32-m scientific radar antenna as part of facility upgrade.

Scientific Assistant

German Aerospace Research Establishment (DLR)
Oberpfaffenhofen, Germany   Summer, 1995
- Wrote programs to estimate and display data on atmospheric effects of aircraft emissions.

Languages

- Fluent English, German.
- Proficient French.
- Working Danish, Turkish.

Computer Skills

- C, C++, Java, Tcl/Tk, Python, Object Pascal, Fortran, and Basic programming languages.
- Matlab, Mathematica and IDL mathematics programs .
- Simulink and Constellation simulation and real-time development environments.
- Windows, UNIX, Linux, Mac OS X, VxWorks and xPC operating systems.
- Ethernet networking installation and maintenance.
- LaTeX document formatting system.
- Dreamweaver and HTML web design.

Activities & Interests

- President, Stanford Chapter of Engineers for a Sustainable World, a student organization helping developing communities in a sustainable manner.
- Co-founder, Friends of Anatolia, a non-profit organization promoting cultural and development ties between the US and Turkey.
- Participant and Leader, Stanford Young Astronauts, a program teaching science and engineering to 3rd and 4th graders.
- Volleyball, backpacking, woodworking, gardening.