

Dov Kruger

570 Wyndham Rd, Teaneck, NJ 07666

(201) 798-1590

Dov.B.Kruger@gmail.com

Education	Ph.D. in Ocean Engineering (robotics), Stevens Institute of Technology, Hoboken, NJ	2010
	M.S. in Computer Science, Stevens Institute of Technology	2006
	B.E. Electrical Engineering/Computer Science, Stevens Institute of Technology	1987

Skills	Programming Languages	C++, Java, C#, C, Perl, MATLAB, FORTRAN 77/90/95, R, Python, OpenSCAD, 80x86 ASM, Smalltalk
	Web Programming	HTML, CSS, JavaScript, Java Servlets/JSP, PHP, ASP
	Design	Object-Oriented Analysis and Design, Algorithms, Numerical Analysis
	Operating Systems	Linux (Ubuntu, Redhat), MacOS X, Windows XP/7/8/8.1/10, Solaris
	Middleware	CORBA, Java RMI, REST API, IBM MQ, Tuxedo
	Tools	emacs, Sublime Text 3, IntelliJ, Netbeans, Eclipse, Qt Creator, CLion, vscode, Visual Studio, Notepad++, make, cmake, ninja
		g++, gdb, clang, Tomcat 7/8, Apache httpd, IIS, ant, mvn, sh, bash
	Version Control	git, mercurial, svn
	Data Interchange	JSON, XML, STL
	Parallelization	C++11 threads, OpenMP, MPI, pthreads
	Graphical APIs	Java Swing, OpenGL, Processing, Java2d, Motif
	Databases	Oracle, MySQL, Sybase, MongoDB
	Hardware	Arduino, STM ARM, Raspberry Pi
	CAD	Eagle, Fritzing, SolidWorks
	Languages	fluent in English, conversational Hebrew and French, beginner Japanese

Work Experience *Teaching Associate Professor*, Stevens Institute of Technology, Hoboken, NJ 09/2019 – present

Teaching Assistant Professor, Stevens Institute of Technology, Hoboken, NJ 09/2014 – 2019
Developing new courses: Project-based web development and 3d graphics/parallel algorithms.
Teaching graduate courses: EE-552 (Java), EE-553(C++11), CPE-593 (Data Structures), CPE-640 (Software Engineering I), CPE-642 (Software Engineering II).
Obtained provisional patent on new network protocol to replace HTTP.

Adjunct Faculty, Stevens Institute of Technology, Hoboken, NJ 01/2009 – 05/2013
Taught graduate course in data structures and algorithms, network privacy.
Taught seminars in web security and parallel programming at the National Security Agency

President, Right TRAK, Inc, Teaneck, NJ 06/1995 – 05/2015

- Designed and delivered course materials for high school magnet program in programming
- Designed and delivered innovative science lessons for K, 3, 4.
- Conducting research on improving outcomes in science and mathematics education.
- Provided training and mentoring services to corporate clients and universities including
 - Merrill Lynch (New York, New Jersey, and Japan), Goldman Sachs, Lehman, Shearson, AIG, Texas Instruments, Motorola, Harris, Raytheon, IBM, Nortel, Chase, Bank of New York, Salomon, Smith Barney, Stevens Institute of Technology

Research Assistant, Center for Maritime Studies, Stevens Institute of Technology 02/2007 – 05/2010

- Researched path planning and localization for an underwater autonomous vehicle
- Developed new algorithms for efficient path planning of a robot in a 3-dimensional current field changing in time
- Developed new algorithms for localization of a robot combining incomplete navigational data from disparate times into a probabilistic estimate of location with less computation than particle filters while retaining the same accuracy
- Deployed robot to test the above algorithms in the Hudson in mid-March 2008

Senior Research Engineer, Center for Maritime Studies

07/2006 – 01/2007

Managed 3 undergraduate programmers working on summer research

- Created high resolution grid of the Hudson River Estuary for modeling
- Designed an orthogonal grid generator for environmental modeling, and mentored student in writing a java application to implement the design
- Mentored student in writing a 3d environment for visualizing robot path planning; wrote a first version of the path planner that resulted in a paper at IEEE ICRA '07 and is the basis of my thesis topic
- Maintained and updated the website I designed to display forecast data
<http://www.stevens.edu/maritimeforecast>

Research Engineer, Center for Maritime Studies, Stevens Institute of Technology 03/2002 – 06/2006

- Supervised staff of 3 programmers and system administrators, and graduate and undergraduate programmers.
- Gathered data from realtime feeds in the field, filtered for correctness, stored in our database, for dissemination via the website
- Designed and built website displaying environmental hydrodynamics forecast hindcast/forecast
- Developed a visualization tool for viewing gridded model results and slices of 4-D data
- Created software graphing model results, generating thousands of daily plots streamed on the website
- Identified techniques to speed up and parallelize ECOMSED environmental model
- Purchased all cluster and other computer hardware, budget of \$150,000
- Supervised PC maintenance and Unix, and network system administration

Consultant, Brandon System, Jersey City, NJ

10/1992 – 07/1996

- Mentored teams at JP Morgan in C, Galaxy GUI programming to build a back office trade support application
- Trained Corporate clients
- Developed training materials

Software Engineer, Design and Manufacturing Institute, Hoboken, NJ

03/1992 – 09/1992

- Designed and wrote C++ geometry library for AI augmented CAD system to critique composite injection molded polymer parts

Associate, Morgan Stanley, New York, NY.

11/1990 – 01/1992

- Wrote a Smalltalk graphical interface to monitor the Morgan Stanley network and report machine status in realtime

Research Assistant, CS Department, Stevens Institute of Technology

09/1989 – 08/1990

- Investigated moving processes transparently between computers under Unix as part of a fault tolerant system. Proved that the concept was unworkable
- Devised algorithms to analyze the opening game and life and death battles in the game of Go

Software Engineer, Spencer Organization, Westwood, NJ

08/1988 – 08/1989

- Co-designed and built the first version of PLANET, a CAD/database for network management.
- Spencer Organization subsequently grew and became Planet Associates
(www.planetassociates.com)

Software Engineer, Digital Equipment Corporation, Nashua, NH

05/1987 – 06/1988

- Designed and wrote the code generator, optimizer and some parts of the runtime library for a production C compiler.
- Doubled speed of generated machine language code over original design.

Publications

- Journal Articles** D. Kruger, H. Shi, M. Samaan, D. Chesley, J. Nickerson, L. Imas. "A new technique for efficient localization: the Multiple Analytical Distribution Filter (MADF)." *Journal of Underwater Acoustics* (2010).
- D. Kruger, H. Shi, M. Samaan, J. Nickerson, L. Imas. "Dynamic UUV Path Planning in an Estuarine Current Field." *Journal of Underwater Acoustics* (2010).
- Invited Talks** D. Kruger. "Computing Issues for Modelers: The Synergy between Computer Science and CFD" *Terrain-Following Modelling*, Seattle, WA 2003.
- Selected Conferences** D. Kruger, R. Stolkin, A. Blum, J. Briganti. "Optimal AUV path planning for extended missions in complex, fast-flowing estuarine environments", *IEEE International Conference on Robotics and Automation*, Rome, Italy, 2007.
- H. Shi, D. Kruger and J. Nickerson. "Incorporating environmental information into underwater acoustic sensor coverage estimation in estuaries", *Proceedings of Military Communications Conference (MILCOM)*, Orlando, Florida, October 2007.
- H. Shi, D. Kruger and J. Nickerson. "Environmental impact on underwater surveillance systems in estuary areas", in *Proceedings of the IEEE International Conference on Intelligence and Security Informatics (ISI)*, New Brunswick, New Jersey, May 2007.
- Magazines** D. Kruger, "Performance Tuning in Java", *Java Developers Journal*, Vol 7, Issue 8, August 2002
- Books** Henry Mullish and Dov Kruger. *Applesoft BASIC: From the Ground Up*, McGraw-Hill, 1983.
- Henry Mullish and Dov Kruger. *Programming the Apple IIc* (A Byte book), 1984.
- Henry Mullish and Dov Kruger. *Zappers! 99 Games for the TI 99/4A*, 1985.
- Henry Mullish and Dov Kruger. *At Home with Commodore BASIC*, 1985.