

Max G. Kresch, Ph.D.

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WORK

EXPERIENCE **University of Wisconsin**

The University of Wisconsin offers a Master of Science in Data Science through online coursework and projects. I teach DS 700: Foundations of data science, DS 710: Programming for data science, and DS 745: Visualization and Unstructured Data Analysis.

lecturer, 2017 –

Marft Inc., San Francisco, California

Marft is an early stage startup providing machine learning as a service. Target clients are professionals with no computer or machine learning expertise. (Currently, Marft has little web presence, and all work is held in private repositories.)

Tools and systems engineer, 2013 –

- Designed and developed an account management system allowing customers to sign up, receive credentials, log in, select plans, make payments, and download customized (cross-platform) client applications. Key transactions are stored and dependent systems are updated automatically.
- Designed and developed a (distributed) data transport system enabling processing of client data by an available machine learning engine. Resultant analyses and reports are returned to the client. The system is automatically deployable, secure, and robust.
- Designed automated test suites for both the data transport and account management systems. Developed the test suite for the latter.
- Trained and managed a junior programmer developing the test suite for the data transport system.
- Led cross-team integration of the client applications with the data transport system, and of the account management system with an associated web toolkit.

Institute for Defense Analyses (IDA), Alexandria, Virginia

The Operational Evaluation Division at IDA provides technical advice on how to test and interpret the results of tests of federal government systems and purchases. Their findings influence the decisions of high level officials in the departments of Defense and Homeland Security.

Research Staff Member, Operational Evaluation Division, 2009 – 2013

- Managed and oversaw teams of analysts testing and evaluating government computer systems in their operational environments.
- Analyzed and interpreted test plans and results. Recommended courses of action (buy/don't buy, deploy or not, repair/upgrade before deployment, etc.) to high level government decision makers.
- Established a lab for computer security education and research.

Consultant, Operational Evaluation Division, 2013 – 2018

- Helped design a computer security course tailored to the needs of division members.
- Provided advice on reviews of test plans and results.
- Provided support for maintenance and expansion of the computer lab.

EDUCATION **Ph.D., M.S., California Institute of Technology**, Pasadena, California, 2002 – 2009
Ph.D., **Materials Science**, June 2009
Area of Research: Solid-state Physics / Materials Science
Thesis Topic: **Temperature Dependence of Phonons in Elemental Cubic Metals**
M.S., **Materials Science**, June 2004; GPA: 3.70/4.00

University of Wisconsin, Oshkosh & Fox Valley, 1999 – 2002
Courses in Physics, Computer Science, Mathematics, & Chemistry; GPA 3.98/4.00
Area of Research: Surface Physics

B.A., Pomona College, Claremont, California, 1995 – 1999
B.A., **French**, May 1999; GPA: 10.16/12.00
Area of Research: French Philosophy and Literature
Thesis Topic: The Maxims of Francois Duc de la Rochefoucauld

Honors

Author or coauthor of over 20 articles, presentations, and posters. ([Partial list here.](#))
Lansce Neutron Scattering School at Los Alamos National Laboratory, 2004.
National School on Neutron and X-ray Scattering at Argonne National Laboratory, 2003.
W.C. Clark Fellowship, California Institute of Technology, 2002.
Freshman Chemistry Achievement Award, University of Wisconsin, Oshkosh, 2000-2001.
Study abroad at the Sorbonne in Paris, 1998.

TECHNICAL SKILLS

Computers

Programming:

- Applications (Python, C, C++).
- Scripting and automation (Python, Shell, UNIX utilities, Lua, Perl, PHP, Ruby).
- Calculations/Plotting (Gnuplot, Matlab, Maple, Mathematica, Maxima, R, Excel).
- Publishing (\LaTeX , HTML).
- Other (JavaScript, Visual Basic, Java, MySQL, x86 assembly).

Cloud computing with integration and automation:

- AWS and boto including EC2, S3, and Cloudfront.
- Azure and azure.js including virtual machines.

Distributed computing administration including small Beowulf and Hadoop clusters.
Linux system administration.

Science/Materials

Neutron and X-ray diffraction, scattering, and spectroscopy.
Computer simulations of materials:

- Molecular dynamics (GULP, PHON).
- Density functional theory calculations (Wien2k, VASP).

Arcmelting, arcwelding, general materials processing.

OTHER SKILLS

Languages: I'm fluent in French, and I speak conversational Hebrew.
Teaching: I've taught guitar and tutored physics.
Music: I play guitar in a local band.
Sports: I regularly play ultimate disc, cross-country ski, weightlift, ...