

Introduction to Sandia National Labs

EECS Department

September 16, 2008

**Cole Shaw
Devin O'Connor
Sandia National Laboratories**



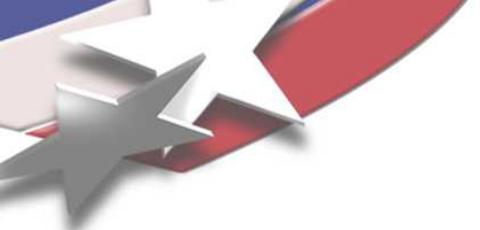
Cole's Background

- BS, EE from UM, April 2004
- MSE, EE Systems from UM, April 2005
- Member of Technical Staff at Sandia
 - DoD Security System Engineering
 - 2 years
 - Subsystem / integration engineer
 - Flight & Embedded Software
 - Program Management
 - Hardware testing / data analysis
 - Web-based application development
 - MS/BS Recruiter



Devin's Background

- **MSE, ME from UM, Dec 2007**
- **Member of Technical Staff at Sandia**
 - **Multi-Physics Modeling & Simulation Department**
 - **MS/BS Recruiter**



Today's Goals

- Introduce you to Sandia National Laboratories
- Brief overview of EECS projects at Sandia
- Information about Sandia employment
 - Current Employment Opportunities
- Questions and Answers



Sandia Introduction

- **Introduce you to Sandia National Laboratories**
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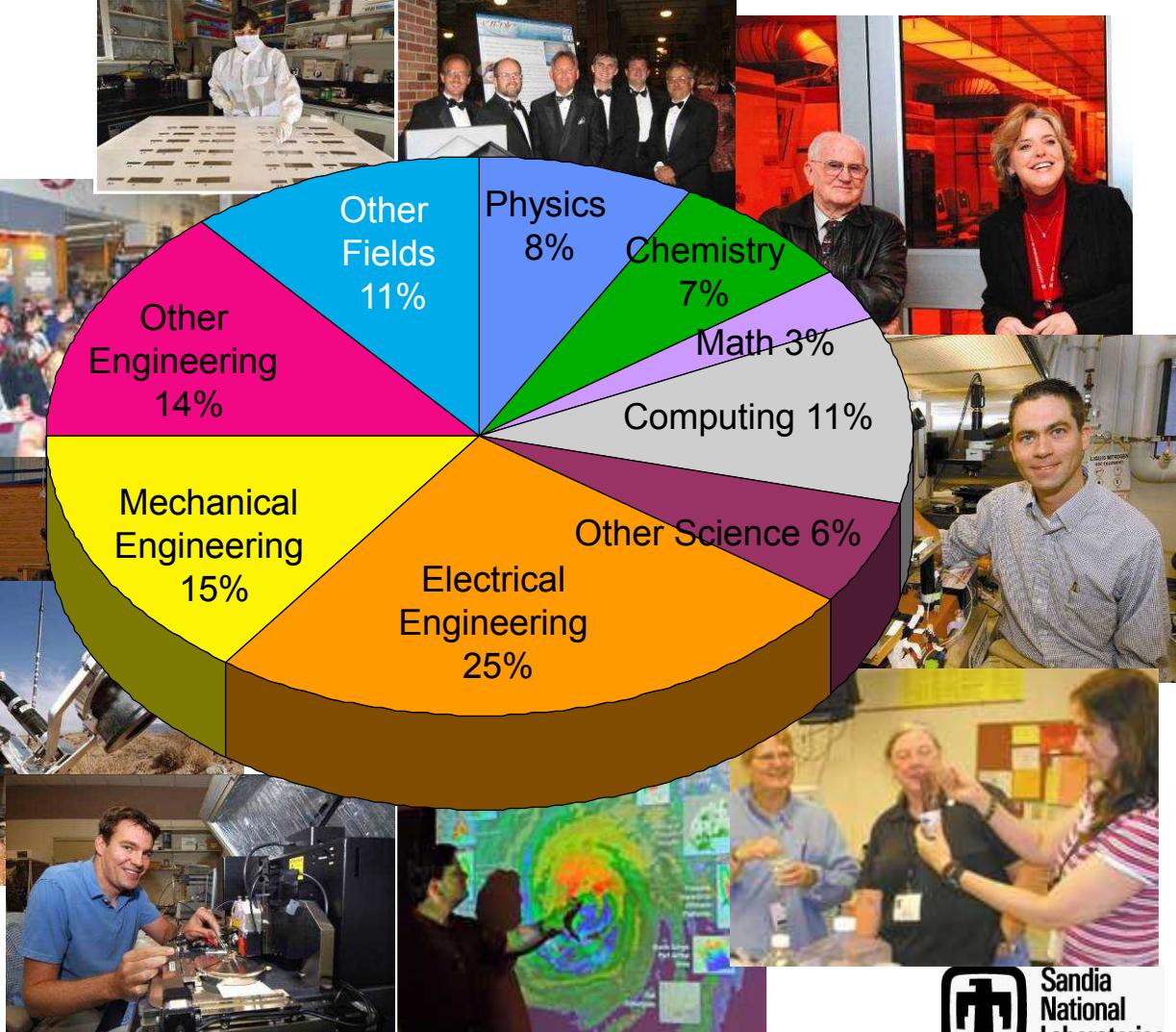


Sandia Core Missions

- **Video: Corporate overview (5:21)**

Sandia Employs More Than 8,500 Highly Skilled Workers

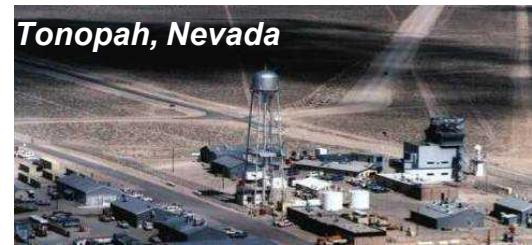
- Over 8,500 employees
- Over 1,500 PhDs
- Over 2,500 MS/MA
- Over 1,000 on-site contractors
- FY06 operating budget was \$2.1 billion



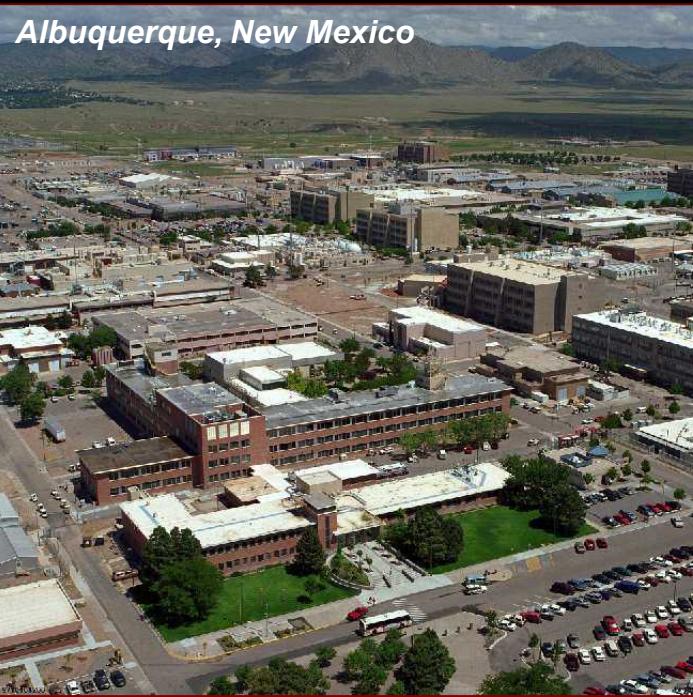


Sandia National Laboratories is Geographically Distributed

Tonopah, Nevada



Albuquerque, New Mexico



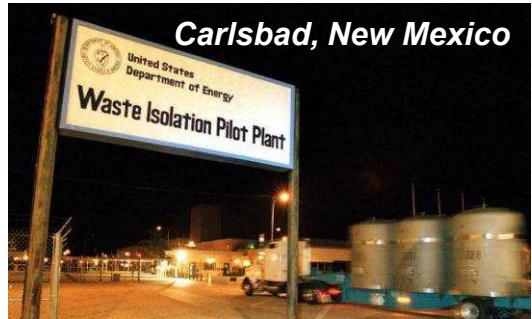
Kodiak, Alaska



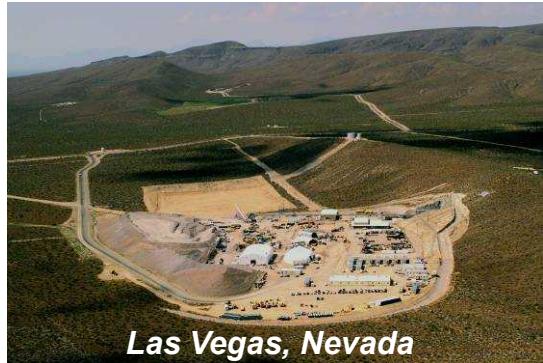
Pantex, Texas



Carlsbad, New Mexico



Las Vegas, Nevada



Livermore, California





Sandia National Laboratories

- **Core Missions**
 - **Nuclear weapons**
 - Ensure secure & reliable nuclear deterrent
 - **Non-proliferation**
 - Reduce proliferation of WMD
 - **Homeland security**
 - Protect against terrorism with advanced technology
 - **Energy & infrastructure assurance**
 - Ensure clean, abundant, affordable energy & water
 - **Defense systems**
 - Maintain US military superiority
 - **Science, Technology, & Engineering**
 - R&D programs for national security



Sandia National Laboratories History

- **Laminar Flow Clean Room invented in 1960**
- **Explosive Detection Portal in airports uses SNL technology**
- **Two supercomputers ranked in the top 50 worldwide**
- **Experts asked to consult on:**
 - **Sago mine explosion**
 - **Columbia shuttle disaster**



EECS Projects at Sandia

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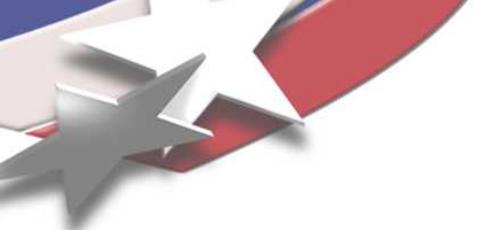
EECS Work

- Video: EE Perspectives (3:03)



EECS Projects

- Supercomputing / parallel computing
- Remotely Operated Weapon Systems
- Remote Sensing
- Synthetic Aperture Radar
- Red-teaming / Information Security
- Solar Energy
- Pulsed Power
- MEMS
- Nanotechnology



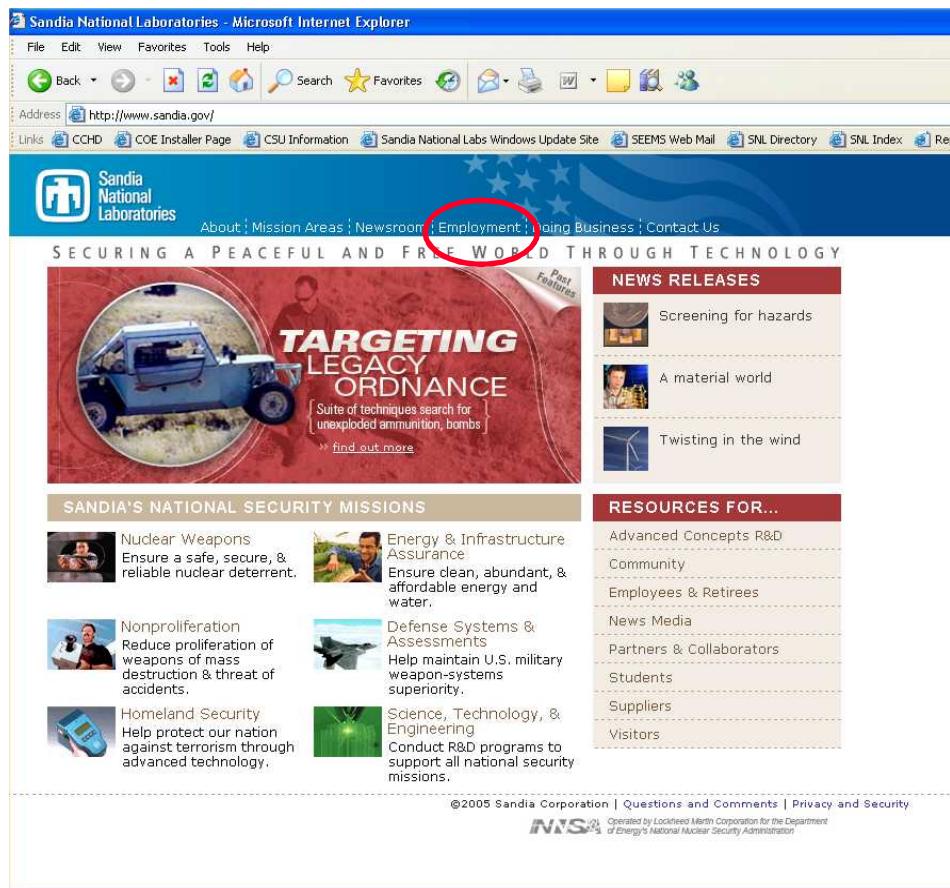
Applying For Jobs

- Introduce you to Sandia National Laboratories
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- Questions and Answers



Information on Sandia Employment

- <http://www.sandia.gov>



Sandia National Laboratories - Microsoft Internet Explorer

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Address: http://www.sandia.gov/

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Sandia National Laboratories

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SECURING A PEACEFUL AND FREE WORLD THROUGH TECHNOLOGY

TARGETING LEGACY ORDNANCE

Suite of techniques search for unexploded ordnance, bombs

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NEWS RELEASES

- Screening for hazards
- A material world
- Twisting in the wind

SANDIA'S NATIONAL SECURITY MISSIONS

- Nuclear Weapons**
Ensure a safe, secure, & reliable nuclear deterrent.
- Energy & Infrastructure Assurance**
Ensure clean, abundant, & affordable energy and water.
- Nonproliferation**
Reduce proliferation of weapons of mass destruction & threat of accidents.
- Defense Systems & Assessments**
Help maintain U.S. military weapon-systems superiority.
- Homeland Security**
Help protect our nation against terrorism through advanced technology.
- Science, Technology, & Engineering**
Conduct R&D programs to support all national security missions.

RESOURCES FOR...

- Advanced Concepts R&D
- Community
- Employees & Retirees
- News Media
- Partners & Collaborators
- Students
- Suppliers
- Visitors

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NNSA Operated by Lockheed Martin Corporation for the Department of Energy's National Nuclear Security Administration



Current Openings

- 77 direct manager requests + current openings posted
 - About 50% staff, 50% post-doc / limited term
- High demand for EECS majors
 - Nano-devices; MEMS
 - Analog / digital circuit design
 - ASICS / VHDL / FPGA design
 - Radar
 - Signal Processing, Wireless Communications
 - C++, Java, C, Matlab, Fortran, Python
 - Information Security; reverse engineering
 - Parallel programming; distributed algorithms; machine learning



Questions and Answers

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Questions?

- Cole Shaw
- cshaw@sandia.gov

- Devin O'Connor
- dtoconn@sandia.gov



My role as a recruiter

- Increase awareness at U of M CoE about Sandia as potential employer for U of M engineers
- Serve as human point-of-contact between Sandia and university students
- Cannot interview students for BS-level positions
- Can interview students for MS and Ph.D.-level positions
- Put qualified MS and Ph.D. candidates in touch with hiring managers



Campus Interviews

- Interview/meeting room reserved
- Will meet with Ph.D. candidates by appointment for informal interviews
 - Meet with me after today's lunch to exchange information
- See ECRC's HireME system for current Sandia openings that we can discuss



BRIEF OVERVIEW OF MY MAJOR PROJECTS AT SANDIA



Education and Work History

- **University of Michigan, Ann Arbor**
 - BS, Mechanical Engineering, 1991
 - MS, Mechanical Engineering, 1992
 - Ph.D., Environmental Engineering, 1999
- **New Mexico Tech, Socorro, NM**
 - Post-doctoral research assistant, 1999-2001
- **Sandia National Laboratories, Albuquerque, NM**
 - Technical staff, 2001-present



Sandia Projects

- **Nuclear Waste Management (3 yrs)**
 - Environmental risk assessment modeling for operational nuclear waste disposal site in Carlsbad, NM
- **US Strategic Petroleum Reserve (3.5 yrs)**
 - Chemical engineering support for VOC emissions control projects



Job Search Keys

- Engage your faculty advisor
- Keep in touch with recent graduates in the work force
- Look into co-ops and internships
 - Effective trial period for both parties
 - Often lead to permanent jobs
- Use ECRC resources
- Most applicable to Ph.D.'s
 - Present your work at professional conferences and market yourself while you are there
 - Contact people in your field about post-docs because many are not advertised



Post doc job search: What really worked

- Sent unsolicited e-mails to the top 10 researchers I wanted to work for
 - Sources for contacts
 - Dissertation bibliography
 - Conference proceedings
 - Polite e-mail saying that I am graduating soon, interested in their work, CV attached with publications list
- 8 responses, 5 interviews, 3 job offers in 2 months
 - All post-doc positions

Employment website



Sandia National Labs: Employment - Microsoft Internet Explorer

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Address http://www.sandia.gov/employment/index.html

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EMPLOYMENT

[Career Opportunities](#)

[Student/Special Programs](#)

[Our People](#)

[Total Rewards](#)

EMPLOYMENT

Sandia wants people who are eager to tackle the grand scientific and engineering challenges of the 21st century.



Work with extraordinary people doing [extraordinary things](#).



At Sandia, life is balanced between work, family, recreation, and rest.



Work you do at Sandia can [affect the nation](#).

We seek people who desire to make America, and the world, a better and safer place people who have the determination to create the technology to make it that way.

Join the team that is changing the world.



Employment Website

Sandia National Labs: Employment: Career Opportunities - Microsoft Internet Explorer

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Address http://www.sandia.gov/employment/career-opp/index.html

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http://csu.sandia.gov/comppny/coeinfo/windows/COEInstall.htm

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EMPLOYMENT

Career Opportunities

Student/Special Programs

Our People

Total Rewards

CAREER OPPORTUNITIES

Resume submission

- You may submit your resume online, only by applying to a job opening. We accept resumes in the Word (.doc), Adobe Acrobat (.pdf), ASCII text (.txt), or Rich Text (.rtf) file formats.
- Sandia does not accept unsolicited resume submission online, by email, or by mail. Only those applying to a specific job opening through the [Sandia internet Careers site](#) will be considered.
- Sandia does not allow late application once the posting period for a job has passed.
- **Double-check your information prior to submission, as you will not be able to modify your application, once it has been submitted!**

Search Job Postings

Note: The Sandia internet Careers site is suspended for maintenance every Tuesday evening between 8:00pm and midnight MST. All users will be denied access until the maintenance process is completed.

[Need help?](#)

About applying to Sandia

- Sandia National Laboratories is an Equal Opportunity Employer M/F/D/V.
- Sandia is a Department of Energy (DOE) national laboratory; as such, many of our jobs require

SAR (Synthetic Aperture Radar) — Sandia is the world's leader in the development of the special all-weather, day/night imaging technology.

Industrial Laboratories

