DAVID SCRIPKA

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Expertise

MATERIALS SCIENCE – MATERIAL BEHAVIOR IN EXTREME CONDITIONS

- Highly coupled multi-physics simulations of mechanical and optical material behavior in extreme environments
- Laser-driven shock compression experiments employing velocity interferometry and time-resolved optical spectroscopy

DATA ANALYTICS

- Multivariate data analysis, with focus areas in signal processing, image analysis, and statistical uncertainty estimation
- Data cleaning/processing, analysis, and visualization with R, Python, MATLAB, Microsoft Excel, and Tableau

COMMUNICATION

- Experienced in effectively organizing and presenting technical information in both formal and informal settings
- Experienced in writing academic papers, technical reports, summary/review documents, and policy analyses

Education

PhD MATERIALS SCIENCE AND ENGINEERING – *Georgia Institute of Technology - Atlanta, GA - 2013 to 2017*

- 4.0/4.0 GPA, Minor in Public Policy

B.S. MATERIALS SCIENCE AND ENGINEERING – *Georgia Institute of Technology - Atlanta, GA - 2010 - 2012*

- 3.9/4.0 GPA, Highest Honor, Biomaterials Certificate

Work Experience

GRADUATE RESEARCH ASSISTANT – *Georgia Institute of Technology -Atlanta, GA - Jan 2013 to present - 40 hrs/wk*

- **Designed and conducted novel experiments** with high-energy lasers and advanced optical sensors to study material behavior
- **Designed and performed complex multi-physics simulations** to predict real-world material behavior observed in experiments

NATIONAL SECURITY DIVISION ANALYST – *Congressional Budget Office - Washington, DC - June to Aug 2016*

- **Independently performed a comprehensive risk analysis** of the vulnerability of the US electric grid to cyber-attacks
- **Organized and summarized analysis methods, results, and conclusions** in detailed oral and written reports

ENERGETIC MATERIALS INTERN – *Lawrence Livermore National Laboratory - Livermore, CA - May to Aug 2012 - 40 hrs/wk*

- **Evaluated and tested an empirical material behavior model** by comparing simulation predictions to experimental data
- **Identified and corrected an unknown inaccuracy** in a material model by mathematically reformulating a key model input

UNDERGRADUATE RESEARCH ASSISTANT – *Georgia Institute of Technology - Atlanta, GA - Nov 2010 to Dec 2012 - 8 hrs/wk*

- **Characterized the structure and experimentally tested mechanical behavior** for a novel aluminum/steel composite armor
- **Performed multi-physics simulations of high speed aluminum extrusion** to identify important effects in rail-gun launch systems
- **Applied multiple electron microscopy methods to identify chemical reactions** in shock-compressed nickel/aluminum nano-foils
- **Simulated micrometer scale interactions in granular-type materials** to evaluate the effectiveness of microscopic sensors

INTERIOR MATERIALS INTERN – *General Motors Corporation -Warren, MI - May to Aug 2011 - 40 hrs/wk*

- **Planned, coordinated, and directed a large-scale field inspection** of used vehicles to evaluate real-world material performance
- **Performed large-scale mechanical wear testing** of molded plastic materials to evaluate intrinsic durability of different designs
- **Designed and programmed an automated Microsoft Excel spreadsheet** to validate material property data in digital databases
- **Organized, analyzed, and presented complex data** to GM Department Managers orally and in written reports

Research Publications

- David Scripka, et al., *"Spectral Response of Multilayer Optical Structures to Dynamic Loading"* Journal of Physics: Conference Series, 2016 (Accepted for publication)

- David Scripka, et al., *"Spectral Response of Multilayer Optical Structure to Dynamic Mechanical Loading*." Applied Physics Letters **106**, 201906 (2015)
- David Scripka, et al., *"Correlating computationally derived particle surface stress-strain states to mesoscale shock response."* Journal of Physics: Conference Series **500** 182038, 2014

Projects

GEORGIA TECH THESIS TEMPLATE – *Georgia Institute of Technology, Atlanta, GA - 2016 to present*

- **Directed the development of the Georgia Tech thesis template,** providing multiple versions available to all 6,500+ students

CONSULTING CASE COMPETITION: ATLANTA COMMUNITY FOOD BANK – *Atlanta, GA - Spring 2015*

- **Worked in a team to develop strategic plans for a community food bank expansion,** presented plan to professional consultants

CONSULTING CASE COMPETITION: PHARMACEUTICAL PORTFOLIO – *Bethesda, Maryland - Spring 2015*

- **Worked in a team to optimize hypothetical pharmaceutical portfolios**, presented portfolio design to professional consultants

Leadership and Service

GRADUATE STUDENT BODY PRESIDENT – *Georgia Institute of Technology – May 2016 to April 2017*

- Primary representative and advocate for 6,500+ graduate students, working extensively with senior Faculty and Administrators
- Develops and manages institute-wide graduate student initiatives, defining Graduate Student Government priorities and plans

GRADUATE STUDENT GOVERNMENT EXEC. BOARD MEMBER – *Georgia Institute of Technology - Aug 2015 to present*

- Directed the development of the Georgia Tech PhD Thesis template, working with the GT Department of Graduate Studies
- Helped manage initiatives, elections, appointments to institute committees, and the general operations of the legislative body

VOLUNTEER CONSULTANT – *Community Consulting Teams (CCT) Atlanta - Atlanta, GA - 2016 to present*

- Worked in a diverse team of professionals and students to update the policy and procedure manual for a non-profit health clinic

ACADEMIC MENTOR – *MSE Student Mentor Program - Georgia Institute of Technology - Atlanta, GA - 2015 to 2016*

- Personally mentored multiple undergraduate students, advising on academic issues, professional goals, and career plans

FINANCIAL ACCOUNTANT – *Harbour East Asia – Fall 2015 to Fall 2016*

- Maintained financial records for 501(c)(3) non-profit organization, advises on long-term program and financial strategies

MSE GRADUATE STUDENT ADVISORY GROUP MEMBER- *Georgia Institute of Technology - Atlanta, GA - 2014 to 2015*

- Advised the MSE Department on policy changes and initiatives, planned and ran professional development events for students
- Aided in the planning, organization, and implementation of the graduate student recruitment process for the MSE department
- Aided in the planning, organization, and implementation of a MSE poster event with 35+ presenters and over $10,000 in awards

Formal Communication

ORAL PRESENTATIONS

ARA 2014 International Symposium – *Arcachon, France*
MRS 2015 International Conference – *Boston, MA*
APS-SCCM 2015 International Conference – *Tampa, FL*
20+ academic and professional talks, formal and informal

POSTER PRESENTATIONS

2013 APS-SCCM International Conference – *Seattle, WA*
2015 APS-SCCM International Conference – *Tampa, FL*
2015 TMS International Conference – *Orlando, FL*
2015 MRS International Conference – *Boston, MA*
7+ presentations at conferences and Georgia Tech events

Honors and Awards

ASEE National Defense Science & Eng. Graduate Fellowship
Georgia Institute of Technology President's Fellowship
Georgia Institute of Technology Federal Jackets Fellowship
5 Poster Presentation Awards
1 Invited Talk
3 Student Travel Awards
10+ Academic Achievement Recognitions

Skills

Programming Languages
R, Python, LaTeX, MATLAB, HMTL/CSS, Javascript, Node, VBA, Bash, C++, SQL

Office Productivity
Microsoft Office (Word/Powerpoint/Excel), Windows 7/8/10, Linux/Unix

Communication
Public Speaking, Technical Writing

Analytics Software
RStudio, Microsoft Excel, MATLAB, Tableau, SAS