

DAVID SCRIPKA

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Address: Atlanta, GA

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." Shock Compression of Condensed Matter - 2015: Proceedings of the Conference of the American Physical Society Topical Group (2017)

- 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, HTML/CSS, Javascript, Node, VBA, Bash, C++, SQL

Communication

Public Speaking, Technical Writing

Office Productivity

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

Analytics Software

RStudio, Microsoft Excel, MATLAB, Tableau, SAS