

Brett Smentek

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education

Clemson University

May 2014

Bachelor of Science in Mechanical Engineering

- Calhoun Honors College
- Engineer in Training (EIT)

related
experience

Arup Group, New York, New York

2014 – present

Building information modeling (BIM) consultant

- Acted as a point person for the experimentation with applying emerging technologies to the design, building, and analysis of structures.
- Contributed to drawing and model production for structural engineering projects including rail infrastructure and buildings.
- Assessed the software needs of the company and organized workflow solutions by working with third-party developers and lean “internal startup” teams.
- Constructed web-based data visualizations using JavaScript for internal data tracking tools and client-facing products.
- Built search engine for full-text documents on the company’s intranet.

Westinghouse Electric Company, Columbia, South Carolina

Summers 2013
+ 2012

Nuclear fuel product engineering intern

- Worked on the design and oversight of mechanical tests, analysis and documentation of test results, and component modeling in SolidWorks.
- Verified the formability properties of reactor components from strain test data.

Research with Dr. Joshua Summers (Mechanical Engineering), Clemson University

January 2012 –
May 2014

Lunar and sand traction research

- Improved longevity of traction systems developed for NASA lunar vehicles.
- Designed, built, and tested tire prototypes using engineering design methods including decision matrices, Pugh Concept Selection, and iterative testing.

Research with Prof. David Lee (Architecture), Clemson University

August 2013 –
May 2014

Computational design and responsive architecture research

- Designed, programmed, and constructed an Arduino-controlled prototype façade composed of light-responsive panels.
- Inquired into the integration of engineering and architectural design philosophies and the process of developing products from concepts.

Research with Dr. Jason Thatcher (Business & Behavioral Science), Clemson University

Spring 2012

“Big data” analysis and research using social media

- Developed an algorithmic trading strategy that repurposed software designed to monitor social media for marketing purposes to isolate trends relevant to the foreign exchange market and automatically execute currency trades.
- Coauthor: “Off-Vehicle Tire Traction and Endurance Testing System,” presented at the ASME 2014 International Design Engineering Technical Conferences and Computers and Information in Engineering (IDETC/CIE) Conference in Buffalo, New York.
- Coauthor: “Experimental Studies on Traction Concepts: Endurance and Obstacle Testing,” presented at the ASME 2013 IDETC/CIE in Portland, Oregon.
- “Clemson University Students use Social Media to Predict Foreign Exchange Markets,” Radian6 case study highlighting the success of the algorithmic trading strategy.

publications

programs &
languages

MATLAB/Simulink, Arduino programming, Git, JavaScript, Lucene, search, HTML, CSS, LabVIEW, SolidWorks, Excel, Rhino/Grasshopper, Revit, AutoCAD, FEA, fluid simulation, Processing, D3.js Max/MSP, R, Minitab, Autodesk Inventor, ASAME, Maple, Java, SQL, C#, machine learning, genetic algorithms, JSON, APIs, schemaless databases, blockchain technologies