

Barry Van Tassell

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Princeton University
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EDUCATION

The City College of New York, New York, NY

Pursuing: PhD in Chemical Engineering (2011-present)

Degree: Master of Engineering in Chemical Engineering (2011)

University at Buffalo, Buffalo, NY

Degree: Bachelor of Science in Chemical Engineering (2008)

CORE SKILLS

- Academic background in chemical engineering, with a research focus on printed electronics and printed batteries
 - Strong do-it-yourself attitude that often leads to unique solutions to difficult problems
 - Entirely self-taught expertise in programming, electronics, and the use of programming to interface with equipment
 - Advanced proficiency in Python, C, Clojure, L^AT_EX, Haskell, AVR-C (Arduino), and Lua
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WORK EXPERIENCE

- Graduate Researcher and Trailing Student, *Princeton University, Princeton, NJ* Jun 2013 to Present
 - Built and designed large scale automated spray deposition system
 - Developed a multi-material reactive spray process to synthesize arbitrary electrode materials on-surface
 - Synthesized Li-ion electrode material using an adjustable combination of reactants and conductive filler
 - Graduate Researcher, *The City College of New York, New York, NY* Jan 2010 to Present
 - Discovered a novel film treatment to prevent dewetting of a polymer dielectric film, which was formally submitted to the US patent office and patent pending as of 2013
 - Developed a spray deposition process for novel nanoparticle dielectric materials for thin film capacitors
 - Designed open-sourced hardware and software for inexpensive electrochemical testing
 - Assistant in Instruction (AI), *Princeton University, Princeton, NJ* Jul 2013 to Jan 2014
 - Designed lab exercises to teach basic thermodynamics, electronics, and programming
 - Performed teaching assistant duties including hands-on teaching of basic electronics and programming
 - Research Intern, *Palo Alto Research Center (PARC), Palo Alto, CA* Jan to Jun 2013
 - Designed and authored in-house software for data acquisition, data analysis, and image analysis
 - Performed a systematic analysis of gravure printed conductors, dielectrics, and semiconductors
 - Professional Tutor, *Orange County Community College, Newburgh, NY* Jan 2009 to Dec 2010
 - Tutored individual students in math, chemistry, and physics
 - Utilized extensive practical knowledge and patience to tailor each tutoring session to the student's learning style
 - Received ubiquitously positive feedback and reviews from students in all fields
 - Field and Laboratory Technician, *Orange County West Nile Surveillance Study, Middletown, NY* Summer 2005 and 2009
 - Captured and reared mosquito adult and larvae samples
 - Identified adult mosquitos to species and prepared them for viral testing
 - Built and maintained species and location data in Microsoft Access
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OTHER EXPERIENCE

- Authored and maintained an addon for a popular online game. The addon had approximately 70,000 active users worldwide as of August 2012.

PUBLICATIONS

- [1] B Van Tassell. *Use of a segmented electrode to control current distribution in electrochemical systems*. Master's thesis, City College of New York, 2012.
 - [2] B Van Tassell, D Steingart, E S Leland, P Chando, L Huang, and S O'Brien. *Prevention of hydrophobic dewetting through nanoparticle surface treatment*, August 29 2013. US Patent App. 13/775,938.
 - [3] L Huang, S Liu, B Van Tassell, X Liu, A Byro, H Zhang, E S Leland, D L Akins, D A Steingart, J Li, and S OBrien. *Structure and performance of dielectric films based on self-assembled nanocrystals with a high dielectric constant*. *Nanotechnology*, 24(41):415602, 2013.
 - [4] B Van Tassell, S Yang, C Le, S Liu, L Huang, P Chando, X Liu, A Byro, D Gerber, E Leland, S Sanders, P Kinget, I Kymissis, D Steingart, and S O'Brien. *Metacapacitors: Printed thin-film, flexible capacitors for power conversion applications*. final edits, 2015.
 - [5] B Van Tassell, G Whiting, L OHara, B Kahn, C Tonkin, B Gasque, and D Steingart. *Scaling gravure printed electronics to the industrial scale*. final edits, 2015.
 - [6] S Bhadra, B J Hertzberg, P J Gjeltrema, B Van Tassell, J W Gallaway, M Chamoun, C Erdonmez, and D A Steingart. *Bouncing alkaline batteries: a basic solution*. in review, 2014.
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PRESENTATIONS

- [1] B Van Tassell, P Chando, S Yang, S Liu, S O'Brien, I Kymissis, and D Steingart. *Spray-deposited wide-area multilayer ceramic capacitors*. Materials Research Society Conference, Fall 2014. Oral Presentation.
- [2] D A Steingart, T Gupta, B Van Tassell, and A Zamarayeva. *React-in-Place Battery Electrodes for Large Scale Energy Storage*. Meeting of the Electrochemical Society, Cancun, 2014. Invited Talk.
- [3] S Bhadra, B J Hertzberg, B Van Tassell, J W Gallaway, M Chamoun, C Erdonmez, and D A Steingart. *Bouncing Alkaline Batteries: A Basic Solution*. Meeting of the Electrochemical Society, Cancun, 2014. Poster.
- [4] B Van Tassell, P Chando, E Leland, G Whiting, and D Steingart. *Scalable Fabrication of Printed Thin Film Multilayer Capacitors*. Gordon Research Conference, Thin Film and Crystal Growth Mechanisms, 2013. Poster.
- [5] B Van Tassell, G Whiting, D Steingart, C Tonkin, B Kahn, and L O'Hara. *Towards Gravure Printed Electronics, A Systematic Approach*. Materials Research Society Conference, Fall 2013. Poster.
- [6] B Van Tassell, P Chando, E Leland, and D Steingart. *Spray Printing of Dielectric Films for Metacapacitor Applications*. Materials Research Society Conference, Fall 2012. Poster.