

# Jonathan D. Blutinger

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## EDUCATION

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**Columbia University, GSAS** | New York, NY (2016 – present)  
*Ph.D., Mechanical Engineering, Hod Lipson's Creative Machines Lab*  
Anticipated graduation date: December 2020

**University of Pennsylvania, SEAS** | Philadelphia, PA (2010 – 2015)  
*M.S.E., Integrated Product Design, magna cum laude*  
*B.S.E., Mechanical Engineering and Applied Mechanics, cum laude*  
*Minor in Engineering Entrepreneurship*

## WORK EXPERIENCE

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**Columbia University Creative Machines Lab** | New York, NY (2016 – present)  
*Ph.D. Candidate, Digital Food*

- Design and develop working 3D food printer which can print and cook food via laser heating
- Lead research in novel field of laser-cooking of dough, meat, and other foods
- Present on direction of food printing and laser cooking and broader impact on the food industry

**Macron Dynamics, Inc.** | Croydon, PA (2015 – 2016)  
*Design Engineer, Linear Robotics*

- Optimized robot gantry designs for specific customer applications
- Developed necessary documentation and build-packets for manufacturing and assembly purposes
- Improved 3D model generating process using design tables and parametrically-driven models

**Tactai, Inc.** | Philadelphia, PA (2014 – 2015)  
*Mechanical Design Engineer, Haptic Technologies*

- Designed modular finger casing which housed electronics and haptic sensing technologies
- Fabricated and optimized casing designs to maximize ease of use and enhance user experience

**PartMaker, Inc. (acquired by Autodesk)** | Fort Washington, PA (Summer 2014)  
*Applications Engineer, CAD/CAM Support*

- Assisted customers with their CAM via phone, web meeting, and email correspondence
- Developed manufacturing processes for custom parts based on application and machine specifications

**United States Army Corps of Engineers** | Duck, NC (Summers 2008 – 2012)  
*Summer Contractor*

- Conducted and analyzed RTK and TOPO surveys of dunes on NC barrier islands
- Guided public tours of ~60 tourists/day through the Field Research Facility

## LEADERSHIP & TEACHING EXPERIENCE

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**Columbia University Mechanical Engineering Graduate Association (MEGA)** | New York, NY (2017 – 2018)  
*President*

- Manage MEGA Executive Board and act as liaison between the ME department and ME grad student body
- Facilitate the planning and execution of social, academic, and career events for ME grad students (~300)

**Columbia University Mechanical Engineering Department** | New York, NY (2016 – 2018)  
*Teaching Assistant*

*MECE3420 – Engineering Design*

- Managed full class of undergraduate students (~60) as they develop and design their capstone projects
- Assisted and communicated assignments and deliverables to students in the professor's absence

*MECE3408 – Computer Graphics & Design*

- Lead lectures on surface modeling and other helpful tools and tricks in SolidWorks

- Created grading rubrics for lab assignments and held office hours for one-on-one student instruction

**University of Pennsylvania Mechanical Engineering Department** | Philadelphia, PA (2012 – 2015)

*Teaching Assistant*

*MEAM510 – Design for Mechatronic Systems*

- Assisted students with circuit prototyping, mechanical design, and coding for a microcontroller
- Evaluated students’ homework and robot project submissions for quality
- Lead lectures to 50+ undergrad and grad students on SolidWorks tools for robot design

*IPD501 – Integrated CAD/CAM/CAE*

- Taught students how to program and operate CNC lathe (Haas TL-1) and CNC mill (Haas MiniMill)
- Reviewed students’ CAD/CAM and mechanical design to ensure manufacturability and proper design

*MEAM201 – Machine Design and Manufacturing*

- Introduced students to manufacturing techniques on manual mills, lathes, and CNC
- Performed weekly finish and tolerance inspections of machined parts

**PUBLICATIONS**

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Blutinger, J.D., Meijers, Y., Chen, P.Y., Zheng, C., Grinspun, E., Lipson, H., 2018. “Characterization of dough baked via blue laser.” **Journal of Food Engineering**. 232, 56-64. <https://doi.org/10.1016/j.jfoodeng.2018.03.022>

Chen, P.Y., Blutinger, J.D., Meijers, Y., Zheng, C., Grinspun, E., Lipson, H., In press. “Visual modeling of laser-induced browning.” **Journal of Food Engineering**.

Blutinger, J.D., Meijers, Y., Chen, P.Y., Zheng, C., Grinspun, E., Lipson, H., Under second round review. “Characterization of CO<sub>2</sub> laser browning of dough.” **Innovative Food Science & Emerging Technologies**.

Hertafeld, E., et al, Accepted. “Multi-Material 3D Food Printing with Simultaneous Infrared Cooking.” **3D Printing and Additive Manufacturing**.

**PATENTS**

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Jonathan D. Blutinger, Yoran Meijers, Hod Lipson, Columbia Technology Ventures, assignee. “Tandem laser system for highly tunable cooking and browning of food.” United States provisional patent pending under application #62/573,765, filed October 18, 2017.

**PRESENTATIONS**

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Invited presenter. “Digital Food,” Summer High School Academic Program for Engineers (SHAPE). July, 2018.

Invited presenter. “Baking dough with lasers,” SWE Engineering Exploration Experience Workshop. March, 2018.

Invited presenter. “3D Printing & Laser Cooking,” New Frontiers in Robotics, Columbia Technology Ventures, NY. October, 2017.

Invited presenter. “Automation in Food,” Pastry Plus Conference. International Culinary Center. September, 2017.

Invited presenter. “Developing and Delivering Compelling Presentations,” University of Rhode Island. July, 2017.

**SKILLS**

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**Technical**

*Design*

- Solidworks
- Inventor
- Keyshot
- Rhino
- PartMaker
- Adobe Creative Suite

*Languages*

- English
- Italian
- Matlab
- HTML/CSS
- C
- Arduino

*Fabrication*

- Manual/CNC milling
- Manual/CNC turning
- Laser cutting
- 3D printing
- Thermoforming
- Wood working