

Brendon W. Smith

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I build software to support the creation, curation, and application of scientific knowledge.

Education

Nanodegree	Mobile Web Specialist	Udacity	2018
Nanodegree	Full Stack Web Developer	Udacity	2017-2018
Postdoc	Molecular Metabolism <i>Advisor</i>	Harvard T.H. Chan School of Public Health <i>Gokhan S. Hotamisligil</i>	2015-2017
Ph.D.	Nutritional Sciences <i>Advisors</i> <i>Dissertation</i>	University of Illinois at Urbana-Champaign <i>William D. O'Brien, Jr.; John W. Erdman, Jr.</i> <i>Effects of nutrition and ultrasound imaging on the cardiovascular system</i>	2009-2014
	<i>GPA</i>	3.95	
B.S.	Applied Health Science	Wheaton College (IL)	2007-2009
B.A.	Spanish	Wheaton College (IL)	2004-2009

Skills

Software

GraphQL | JavaScript | Vue.js | Python | R | Docker | Git | Progressive Web Apps

Science and education

Molecular Biology | Nutrition | Statistics | Lab Management | Teaching

Experience

Software Engineer, Intellia Therapeutics	03/2020 - Present
<ul style="list-style-type: none">• Build full-stack software with Vue.js, Python FastAPI, Docker, and AWS• Automate CI/CD and deployments with GitHub Actions and Terraform	
Software Engineer, Invicro	03/2019 - 12/2019
<ul style="list-style-type: none">• Engineered full-stack biomedical software with Perl, Python, and Vue.js• Automated application installs with Docker Compose and shell scripts	
Grow with Google Scholar, Udacity	01/2018 - 11/2018
<ul style="list-style-type: none">• Completed a web development course in the top 10% of 10,000 students• Initiated and led open-source development of a transportation app	
Lab Manager, Harvard T.H. Chan School of Public Health	11/2016 - 10/2017
<ul style="list-style-type: none">• Enhanced lab infrastructure while surpassing safety guidelines• Saved thousands of dollars with strategic procurement of lab supplies	
Postdoctoral Research Scientist, Harvard T.H. Chan School of Public Health	04/2015 - 11/2016
<ul style="list-style-type: none">• Initiated an independent research program and won grant funding• Applied data science and statistics to analyze high-throughput data	
Graduate Research Fellow, University of Illinois at Urbana-Champaign	06/2009 - 12/2014
<ul style="list-style-type: none">• Led projects on a thirty-person interdisciplinary research team• Earned a teaching certificate in the top 10% of campus teachers	
Undergraduate Research and Teaching Assistant, Wheaton College	08/2008 - 06/2009
<ul style="list-style-type: none">• Published two peer-reviewed research articles and won two awards• Taught four classroom lectures and nine exam review sessions	

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Honors and awards

Google Mobile Web Specialist Nanodegree program scholarship	2018
<i>I won a full scholarship based on my top ranking in the Grow with Google course. I built a Progressive Web App (PWA), a web app that works offline like a native app.</i>	
Grow with Google challenge course	2018
<i>I completed a Progressive Web App training course from Udacity and Google. I attended meetups, built an app, and ranked in the top 10% of 10,000 students.</i>	
Member, Luxuriant Flowing Hair Club for Scientists (LFHCfS)	2018
<i>Improbable Research</i>	
Harvard Training Program in Nutritional Metabolism NIH T32 Training Grant	2016
<i>The Massachusetts General Hospital, \$43,000 stipend and \$500 travel</i>	
First Place, Nutrition Symposium Poster Competition	2014
<i>University of Illinois at Urbana-Champaign, \$250</i>	
Beckman Institute Graduate Fellowship	2013
<i>University of Illinois at Urbana-Champaign, \$20,000 stipend, \$2000 travel, full tuition scholarship</i>	
Finalist, New Investigator Award Competition	2013
<i>American Institute of Ultrasound in Medicine</i>	
Travel Award, Mary Frances Picciano Dietary Supplement Research Practicum	2012
<i>National Institutes of Health, \$1550</i>	
Graduate College Travel Award	2012
<i>University of Illinois at Urbana-Champaign, \$275</i>	
Travel Award, Division of Nutritional Sciences Regulatory Affairs Summit	2011
<i>International Life Sciences Institute, \$1000</i>	
Gamma Sigma Delta Honors Society of Agriculture	2011
<i>University of Illinois at Urbana-Champaign</i>	
Margin of Excellence Travel Awards	2010
<i>Division of Nutritional Sciences, University of Illinois at Urbana-Champaign, \$1800</i>	
Jack L. Swartz Service and Leadership Award	2009
<i>Applied Health Science Department, Wheaton College</i>	
Ruth Berg Leedy Teaching Assistant Award	2009
<i>Applied Health Science Department, Wheaton College</i>	

Leadership

Member, Nutrition Symposium Committee	2011 - 2014
<i>Division of Nutritional Sciences, University of Illinois at Urbana-Champaign</i>	
<ul style="list-style-type: none">• Coordinated judging for the student poster and oral presentation competitions• Introduced keynote speaker in 2012	
Student Representative to the Faculty	2011 - 2013
<i>Division of Nutritional Sciences, University of Illinois at Urbana-Champaign</i>	
<ul style="list-style-type: none">• Represented the student body in faculty and executive committee meetings• Contributed to development of the Division of Nutritional Sciences strategic plan	
Chair, Professional Development Committee	2010 - 2011
<i>Division of Nutritional Sciences, University of Illinois at Urbana-Champaign</i>	
<ul style="list-style-type: none">• Organized six professional development events• Invited a guest speaker to lecture during the weekly Nutritional Sciences seminar	

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Computing projects

inboard <ul style="list-style-type: none">• Provides a PyPI package and Docker images for Python web servers• Supports Gunicorn, Uvicorn, Starlette, FastAPI, and the ASGI spec	08/2020 - Present
Full-stack FastAPI <ul style="list-style-type: none">• Integrates a Python FastAPI back-end and Vue.js front-end• Features an admin dashboard and Docker Compose containerization	12/2019 - Present
GraphQL-Python starter <ul style="list-style-type: none">• Collaborative project with Boston Python User Group meetup members• Features PostgreSQL, Graphene-Python GraphQL API, and React	05/2019 - Present
e12bl <ul style="list-style-type: none">• Python script that helps migrate notes from Evernote to Bear• Parses Evernote export files with BeautifulSoup and regular expressions	05/2019
Restaurant reviews <ul style="list-style-type: none">• Progressive Web App that displays restaurant locations and info• Provides offline access with Service Worker, IndexedDB, and web manifest files	09/2018
Boston's best beans <ul style="list-style-type: none">• Provides info on Boston-area coffee shops using JavaScript ES6+ syntax• Combines Google Maps and Foursquare APIs with the Knockout framework	06/2018
MBTAccess <ul style="list-style-type: none">• Progressive Web App with wheelchair access info for public transit• Built with Python 3, Flask, SQLite, JavaScript ES6, Docker and the MBTA V3 API	04/2018 - Present
Flask catalog <ul style="list-style-type: none">• Python Flask app deployed to Ubuntu Linux Apache server and secured with SSL• Includes SQL database, Google Sign-In, JSON API, and styling with Bootstrap	04/2018
Database analysis <ul style="list-style-type: none">• Python program with SQL queries• Extracts information from a relational database with over a million rows	01/2018
Portfolio site <ul style="list-style-type: none">• Replicates a designer mockup image with HTML and CSS• Built into responsive, mobile-first site with Bootstrap and Jekyll	11/2017
Python movie site <ul style="list-style-type: none">• Python web server that stores a list of movies and serves the list to a webpage• Utilizes class inheritance and class variables	09/2017
Nrf1 proteomics <ul style="list-style-type: none">• Generates volcano plots from mass spectrometry data with >5000 points• Includes computational narratives in Jupyter Notebook and R Markdown	03/2016 - 10/2016
R guide <ul style="list-style-type: none">• Provides a guide and sample code for statistical programming in R• Explains advanced statistical models with published scientific data	04/2015 - 08/2018

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Peer-reviewed publications

8. **Smith BW**, Miller RJ, Wilund KR, O'Brien WD, Jr., Erdman JW, Jr. [Effects of tomato and soy germ on lipid bioaccumulation and atherosclerosis in ApoE^{-/-} mice](#). *Journal of Food Science* 2015.
7. **Smith BW**, Simpson DG, Sarwate S, Miller RJ, Erdman JW, Jr., O'Brien WD, Jr. [Contrast ultrasound imaging of the aorta does not affect progression of atherosclerosis or cardiovascular biomarkers in ApoE^{-/-} mice](#). *Journal of Ultrasound in Medicine* 2015.
6. **Smith BW**, Simpson DG, Miller RJ, Erdman JW, Jr., O'Brien WD, Jr. [Contrast ultrasound imaging does not affect Heat Shock Protein 70 expression in cholesterol-fed rabbit aorta](#). *Journal of Ultrasound in Medicine* 2015.
5. **Smith BW**, King JL, Miller RJ, Blue JP, Jr., Sarwate S, O'Brien WD, Jr., Erdman JW, Jr. [Optimization of a low magnesium, cholesterol-containing diet for the development of atherosclerosis in rabbits](#). *Journal of Food Research* 2013.
4. **Smith BW**, Simpson DG, Sarwate S, Miller RJ, Blue JP, Jr., Haak A, O'Brien WD, Jr., Erdman JW, Jr. [Contrast ultrasound imaging of the aorta alters vascular morphology and circulating von Willebrand factor in hypercholesterolemic rabbits](#). *Journal of Ultrasound in Medicine* 2012.
3. Xue Y, Haub MD, **Smith BW**, Baybutt RC. [Decreases in bone mineral content by dietary all-trans retinoic acid precede decreases in bone mineral density in a weanling rat model of cigarette smoke-induced lung injuries](#). *International Journal for Vitamin and Nutrition Research* 2011.
2. **Smith BW**, Strakova J, King JL, Erdman JW, O'Brien WD. [Validated sandwich ELISA for the quantification of von Willebrand factor in rabbit plasma](#). *Biomarker Insights* 2010.
1. Baybutt RC, **Smith BW**, Donskaya EV, Hu L, Li T, Wang W. [The proliferative effects of retinoic acid on primary cultures of adult rat type II pneumocytes depend upon cell density](#). *In Vitro Cellular and Developmental Biology-Animal* 2010.

Conferences

Oral presentations

1. **Smith BW**, Simpson DG, Sarwate S, Miller RJ, Abuhabsah RM, Erdman JW, Jr., O'Brien WD, Jr. [Contrast ultrasound imaging of the aorta does not affect progression of atherosclerosis in ApoE^{-/-} mice](#). *American Institute of Ultrasound in Medicine Convention 2013*, New York

Poster presentations

8. **Smith BW**, Hotamisligil GS. Next-generation nutritional screening. *EB 2017*, Chicago.
7. **Smith BW**, Hotamisligil GS. Next-generation nutritional screening. *Sabri Ulker 2016*, Istanbul.
6. **Smith BW**, Miller RJ, O'Brien WD, Jr., Erdman JW, Jr. [Effects of restraint and contrast ultrasound imaging on Hsp70 expression in cholesterol-fed rabbit aorta](#). *EB 2014*, San Diego.
5. **Smith BW**, Simpson DG, Sarwate S, Miller RJ, Abuhabsah RM, Erdman JW, Jr., O'Brien WD, Jr. [Contrast ultrasound imaging of the aorta does not affect progression of atherosclerosis in ApoE^{-/-} mice](#). *EB 2013*, Boston.
4. **Smith BW**, Simpson DG, Miller RJ, Lee MB, O'Brien WD, Jr., Erdman JW, Jr. [Contrast ultrasound imaging does not affect Hsp70 expression in cholesterol-fed rabbit aorta](#). *EB 2012*, San Diego.
3. **Smith BW**, Simpson DG, Sarwate S, O'Brien WD, Jr., Erdman JW, Jr. [Contrast ultrasound imaging of the aorta alters vascular morphology and circulating von Willebrand Factor in hypercholesterolemic rabbits](#). *EB 2011*, Washington DC.
2. **Smith BW**, Strakova J, King JL, Tu MJ, Erdman JW, Jr., O'Brien WD, Jr. [A validated sandwich ELISA for the detection of von Willebrand factor in rabbit plasma](#). *EB 2010*, Anaheim.
1. Kamal A, Herndon B, Molteni A, Lawrenz J, **Smith B**, Addington S, Smith B, Alajajian S, Gasper D, Baybutt RC. [Lung protection against the chemotherapeutic agent bleomycin by dietary flaxseed oil](#). *EB 2009*, New Orleans.