Jonathan Mares

contact

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languages

English: native
Russian: fluent
Hebrew: fluent
Spanish: minimal

programming

Python | Java | Ocaml
C | HTML5 | Javascript
Objective C | Matlab

libraries/ tools

Github | Latex | Linux
Heroku | Mathematica
AutoCAD | Flask

coursework

Computer Science
Analysis of Algorithms
Systems Programming
Functional Programming
Java & Data Structures
Discrete Structures
Biomedical Engineering
Biomaterials & Medicine
Cellular Principles of BME
Molecular Princip. of BME
Chemical Engineering
Unit Operations Lab.
Fluid Mechanics
Heat & Mass Transfer
Thermodynamics
Kinetics & Reactor Design
Separation Processes
Process Dynamics
Physical Chemistry I & II

organizations

Cornell Data Science Club
Kappa Sigma Fraternity

certifications

Coursera
Intro to Data Science
Bioinformatics I
Machine Learning (in progress)

activities

motorcycles | bicycles
jazz | classical | piano
volleyball | watersports
standup comedy

education

May 2015 — **Cornell University,** BSc Chemical Engineering; GPA: 3.01 — Ithaca, NY
Additional Coursework in Computer Science

work experience

Sum. 2014 — **Novartis Vaccines** – *Technical Development Intern* — Holly Springs, North Carolina
Project: Multipurpose vaccine platform development
- Developed experiments to define a pilot scale oil-in-water emulsion process
- Characterized emulsion using HPLC and particle sizing techniques
- Wrote a *Python* script to cleanly export particle size data

Sum. 2013 — **IPS- Integrated Project Services** – *Project Engineering Intern* — Somerset, NJ
- Helped push the Integra pharmaceutical design and construction project ahead of schedule
- Worked with on-site contractors to conduct drawing walk-downs and close out project delivery tasks
- Edited AutoCAD drawings & sized pumps and heat exchangers

2011–2012 — **Hi-Tech Pharmacal** – *Validation and Technical Services Intern* — Amityville, NY
Project: Cleaning validation protocol overhaul
- Responsible for calculating the Maximum Allowable Residue for drug products based on parameters such as surface areas of process equipment (kettles, tanks, agitators, pumps, etc.)
- Cut manufacturing losses by 75% by optimizing transfer and filling processes

research experience

2013–Now — **Putnam Lab Group** – *Drug Delivery Researcher* — Cornell University, Ithaca, NY
- Designed and ran experiments to define a new hydrogel material
- Conducted spectroscopy, protein release, and hydrogel degradation

2009–2011 — **Renal Research Institute** – *Research Assistant* — NY Medical College, Valhalla, NY
- Performed mesenchymal stem cell culture and capillary image analysis

projects

Now — **LiveGroceryList** — livegrocerylist.tk
Built a Responsive web application to share grocery lists with family members. Deployed on Heroku, built with *Flask*, and utilizes *PostgreSQL*.

Spring 2015 — **Capstone Chemical Process Design**
Prepared a full scale feasibility study of a Penicillin production process. Technical work included reactor and distillation column design, *Aspen Plus* simulations, utilities design, and a robust process flow diagram. Economic analysis included capital and operating costs estimates for process and off plot support facilities.

Spring 2015 — **ReadMe-dot-Text** — HackCooper @ Cooper Union, NY
Designed an app with a team to convert images into speech for the visually impaired. Built in *Python* with *Flask*,IBM *Bluemix*, *Watson* text-to-speech API, *Leap Motion* for gesture recognition, and *ABBYY FineReader* for optical character recognition.

publications

- Ricapito, N., **Mares, J.**, Petralia, D., & Putnam, D. Neighboring Group Participation in DHA-Based Biomaterial Degradation. Publication in preparation.
- Yasuda, K., Vasko, R., Hayek, P., Ratliff, B., Bicer, H., **Mares, J**...Goligorsky, M. S. (2012). Functional consequences of inhibiting exocytosis of Weibel-Palade bodies in acute renal ischemia. AJP: Renal Physiology, 302(6), F713-F721.
- Ratliff, B., Ghaly, T., Brudnicki, P., Yasuda, K., Rajdev, M., & Bank, M., **Mares, J**...Goligorsky, M S. (2010). Endothelial progenitors encapsulated in bioartificial niches are insulated from systemic cytotoxicity and are angiogenesis competent. AJP: Renal Physiology, 299(1), F178-F186.