Jonathan Mares

contact

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languages

English: native
Russian: fluent
Hebrew: fluent

programming

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

libraries/ tools

Github | Latex | Linux
Heroku | Mathematica
Xcode | Eclipse

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

activities

motorcycles | bicycles
standup comedy
volleyball | watersports
Jazz | Classical | Piano

education

Jan 2016 — **Bachelor of Science** (Double Major) — Cornell University, Ithaca, NY
Chemical and Biomolecular Engineering & Computer Science; GPA: 3.1

work experience

2014 — **Novartis Vaccines** — Holly Springs, North Carolina
Technical Development Intern
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

2013 — **IPS- Integrated Project Services** — Somerset, NJ
Engineering Intern
- Conducted drawing walkdowns, communicated with contractors, and aided with project delivery tasks at the Integra LifeSciences job site
- Aided Design team with AutoCAD drawings and process flow calculations

2011–2012 — **Hi-Tech Pharmacal** — Amityville, NY
Validation and Technical Services Intern
- Conducted surface area calculations of process equipment (kettles, tanks, agitators, pumps, etc.)
- Calculated product transfer line and filler machine volumes and initiated protocol to optimize the filling process of products

research experience

2013–Now — **Putnam Lab Group** — Cornell University, Ithaca, NY
Undergraduate Researcher
Project: Neighboring Group Participation in Rapidly Degrading Hydrogels Based on Dihydroxyacetone
- Conducted UV/Vis Spectroscopy, hydrogel degradation, protein release, and swelling analysis
- Second author on publication to be submitted in coming months

2009–2010 — **Renal Research Institute** — NY Medical College, Valhalla, NY
Research Assistant
Project: Functional Consequences of Inhibiting Exocytosis of Weibel-Palade Bodies in Acute Renal Ischemia
- Assisted with laboratory procedures such as Western Blotting, capillary analysis, and stem cell culture
- Work resulted in two publications in AJP: *Renal Physiology*

projects

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

Now — **ReadMe-dot-Text**
Designed in 24 hours with a team at HackCooper a web app to convert images into speech for the visually impaired using *Python* for optical character recognition and with *Javascript*, *HTML*, and *jQuery*. The app makes use of IBM *Bluemix*, *Watson* text-to-speech API, and *Leap Motion* for gesture recognition. Winner of IBM's API prize.

Spring 2014 — **Pipelined CPU & Network Honeypot**
Main projects for Systems Programming. Designed a 32-bit 5 stage pipelined RISC CPU using *Logism* and implemented a multicore network system in C to track statistics of incoming packets.