

# CYRUS VAFADARI

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## EXPERIENCE

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### **Sookbox, LLC**

2011 - 2014

*Engineering Cofounder*

*Cambridge, MA*

- Raised \$1.2M to develop a home media streaming and playback solution
- Designed and wrote back-end in Python (rewritten from PHP)
- Designed platform for multi-node architectures, remote message calling, and data marshalling
- Designed and implemented cross-platform, medium-agnostic messaging protocol capable of multi-casting
- Recruited and managed team of 5 engineers, worked with CEO to engage firms in strategic partnerships

### **Compact Muon Solenoid, LHC, CERN**

2010

*Observation of Long-Range, Near-Side Angular Correlations in P-P Collisions*

*Geneva, Switzerland*

- Predicting probability of piled-up vertices as a function of multiplicity in proton-proton collisions
- Analyzed over a billion collisions and Monte Carlo simulations in a grid-based C++ framework
- Discovered evidence of quark-gluon plasma in high-multiplicity p-p collisions, never before observed
- Project publication: doi:10.1007/JHEP09(2010)091s

### **Dept. Molecular Biology, Mass. General Hospital**

2009-2013

*Radiation Resistance of Biological Reagents for In Situ Life Detection*

*Boston, MA*

- SETG, MIT/Harvard group designing and constructing a life-detection device to work on Mars
- Designed and executed experiments simulating cosmic radiation on a flight to Mars
- Irradiated over \$40,000 of reagents with over 10 Gy of radiation from 5 different types of radiation
- Project publication: 10.1089/ast.2012.0869

## AWARDS AND PATENTS

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### **H@cking Medicine**

March 2014

*Winner, "Best Use of Data" (largest cash prize)*

- Designed a system for real-time data aggregation and analysis to quantify risks associated with diabetes
- Approached by Joslin Diabetes Center to continue the project

### **Patents Pending**

Filed January 2014

*Co-Inventor*

- Method and System for Providing Digital Content. US PCT/US2014/010243.
- Digital Content Connectivity and Control via a Plurality of Controllers ... US 14/147,397.
- Digital Content Connectivity and Control ... Discriminatively. US 14/149,541.
- Configuring, Networking, and Controlling a Plurality of Unique Network-Capable Devices. US 14/149,726.

## EDUCATION

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### **MIT**

2012

B.S. Nuclear Science and Engineering, 4.6/5.0

### **Monte Carlo Methods for Parallel Processing of Diffusion Equations**

2012 - 2013

*Thesis*

*Cambridge, MA*

- Modelled neutron flux in reactors as systems of differential equations approximated by linear systems
- Used a message passing interface in C to parallelize a Monte Carlo method to calculate solution vectors
- Dynamically determined the number of random walks necessary to decrease runtime while ensuring a given confidence