

EDUCATION

Rice University, August 2010 — May 2013
Bachelors of Science in Mathematics and Physics
Minor in Computational and Applied Mathematics
GPA: 3.70/4.00

ACADEMIC HONORS

Rice Trustee Distinguished Scholarship	August 2010
Rice Century Scholar	August 2010
Robert C. Byrd Scholar	May 2010
National Merit Scholar	March 2010

SOFTWARE ENGINEERING INTERNSHIPS

Palantir

Java | Expected: May 2013 — August 2013

- Forward-deployed engineer intern with *pro bono* team

Plum District (KPCB Engineering Fellow)

Ruby/Rails | May 2012 — August 2012

- Implemented tracking mechanism for Remarketing, Omniture, and Google Analytics
- Fixed view of past offers in business center and corrected redemption of vouchers and deals

TripAdvisor

Java/Velocity | December 2011 — January 2012

- Removed cross-site scripting (XSS) vulnerabilities and implemented JavaScript escaping for text
- Improved relevance of display of Facebook likes, ratings, and recommendations

RESEARCH

Searching for Supersymmetric Top Quarks at the LHC

Python | Fall 2012 — present

- Using boosted decision trees in ROOT TMVA to isolate decay of squarks from background top-top interactions
- Extending on phenomenological data and theory from Bhaskar Dutta et. al. (Texas A&M)

Melody Analysis and Harmony Generation

Python | Fall 2011 — Fall 2012

- Modeled common practice music theory with respect to key structures
- Determined key of input scores given only melodic line; also generated complementary harmonic progression

→ **Preprint:** Sen, O. and Stallmann, K. Analysis of Melody Through Key Definition and Generation of Complementary Harmonies. Rice Undergraduate Research Symposium. Houston, TX, April 13, 2012.

Computationally Generating Musical Variations

Java | Fall 2009 — Fall 2011

- Created systematic framework for representing musical scores
- Used genetic algorithms to create variations on themes

→ **Publication:** Sen, O. Creating Musical Variations Using Genetic Algorithms. *American Junior Academy of Sciences*. Washington, DC, February 16–20, 2011.

Social Networks and Norm Emergence

Java | Fall 2008 — Summer 2009

- Built social networks with different topologies and behavioral patterns
- Analyzed comparative speed of emergence of a norm in the networks

→ **Publication:** Sen, O. and Sen, S. Effects of Social Network Topology and Options on Norm Emergence. *Lecture Notes in Artificial Intelligence* Vol. 6069, p. 211–222, Springer-Verlag, 2010.

Social Dilemmas and Aspiration Levels

Java | Fall 2007 — Summer 2009

- Developed algorithmic approach to solve the Tragedy of the Commons in a multi-agent system using aspiration levels
- Formulated mathematical model placing an upper bound on convergence time

→ **Publication:** Sen, O. and Sen, S. Solving the Tragedy of the Commons by Adapting Aspiration Levels. *Proceedings of COIN@IJCAI09*. San Diego, CA, July 11, 2009.

PROJECTS

Rice University Catalyst: website	catalyst.rice.edu	HTML/CSS	2011—present
Rice University South Asian Society: website	sas.rice.edu	HTML/CSS	2011—present
Simple Charts: real-time updating charts	simplecharts.herokuapp.com	D3.js/NVD3.js	2012
vote.me: voting app for distributed elections	voteme.herokuapp.com	Ruby/Rails	2012
Sangleet: wrote/choreographed/directed a 15-minute musical	bit.ly/sangleet		2011

ACTIVITIES

Rice University South Asian Society: co-president (2012—present), treasurer (2011—2012)

Rice University Catalyst: co-editor-in-chief (2012—present), executive editor (2011—2012)

Will Rice College: academic fellow (2012—present)

Partnership for Advancement & Immersion of Refugees: volunteer/photographer (2010—2011)