

Daniel Ricketts

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Education

2010–present **PhD in Computer Science**, *University of California, San Diego*, 3.91/4.0.

Advisor: Sorin Lerner

Thesis Title: Mitigating the proof burden in foundational verification

- Research into software verification using the Coq proof assistant.
- Developing tools for verification of cyber-physical systems.
- Verified geo-fencing software for a hobbyist quadcopter.
- Developed automation for software verification of message passing kernels.

2005–2009 **B.Sc. in Computer Science**, *Brown University*, 4.0/4.0.

- Research into maximizing profit in online recommendation systems.
- Research into sponsored search auctions such as Google Adwords.

Work Experience

2012.06– **Software Engineering Intern**, *Facebook*, Menlo Park, CA.

2012.09 Worked in C++ and Python to improve user and page search results. Used tools from natural language processing and data mining.

2011.06– **Software Engineer Intern**, *Telefónica Research*, Madrid, Spain.

2011.08 Telefónica is a telecommunications provider in Spain and Latin America. Developed an Android application for labeling a user's important locations based on GPS traces. Developed features allowing the users to visualize useful aspects of their mobility data.

2009.09– **Software Engineer**, *INRIA*, Orsay, France.

2010.08 *Supervisor:* Leslie Lamport.

INRIA is a French national research institution focusing on computer science and applied math. Developed the TLA+ Toolbox, an Eclipse-based IDE for developing formal specifications. Worked to incorporate tools for model checking and automated theorem proving into the Toolbox.

2008.06– **Software Engineering Intern**, *Office of Naval Research*, San Diego, CA, USA.

2008.08 Programmed a Java web application for generating a Google Earth animation of ship movements.

2007.06– **Lab Intern**, *Case Western Reserve University*, Cleveland, OH, USA.

2007.08 Conducted hematology experiments on a molecule thought to affect blood platelet coagulation.

Publications

Daniel Ricketts, Gregory Malecha, and Sorin Lerner. Modular deductive verification of sampled-data systems. In *EMSOFT '16*. ACM, 2016.

Daniel Ricketts, Gregory Malecha, Mario M Alvarez, Vignesh Gowda, and Sorin Lerner. Towards verification of hybrid systems in a foundational proof assistant. In *Formal Methods and Models for Codesign (MEMOCODE)*, 2015 ACM/IEEE International Conference on, pages 248–257. IEEE, 2015.

Daniel Ricketts, Valentin Robert, Dongseok Jang, Zachary Tatlock, and Sorin Lerner.

Automating formal proofs for reactive systems. In *Proceedings of the 35th ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI '14*, pages 452–462, New York, NY, USA, 2014. ACM.

Denis Cousineau, Damien Doligez, Leslie Lamport, Stephan Merz, Daniel Ricketts, and Hernán Vanzetto. *TLA + Proofs*, pages 147–154. Springer Berlin Heidelberg, Berlin, Heidelberg, 2012.

Gregory Malecha, Daniel Ricketts, Mario M Alvarez, and Sorin Lerner. Towards foundational verification of cyber-physical systems. In *SoSCYPS'16*, 2016.

Matthew Chan, Daniel Ricketts, Sorin Lerner, and Gregory Malecha. Formal Verification of Stability Properties of Cyber-physical Systems. In *CoqPL'16*, 2016.

Nuh Aygun Dalkiran, Moshe Hoffman, Ramamohan Paturi, Daniel Ricketts, and Andrea Vattani. *Common Knowledge and State-Dependent Equilibria*, pages 84–95. Springer Berlin Heidelberg, Berlin, Heidelberg, 2012.

Aparna Das, Claire Mathieu, and Daniel Ricketts. Maximizing profit using recommender systems. *arXiv preprint arXiv:0908.3633*, 2009.

Manuel Cebrian, Ramamohan Paturi, and Daniel Ricketts. Experimental study of the impact of historical information in human coordination. *arXiv preprint arXiv:1202.2503*, 2012.

Programming Experience

Verification

Coq, TLA+

Implementation

Java, Python, C/C++, Ocaml, Haskell

Teaching Experience

Teaching Assistant at UC San Diego for CSE130: Undergrad Programming Languages Spring '16, Winter '15, Spring '14