

Heidy A. Khlaaf

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- EDUCATION**
- University College London** **Sept 2013 - Expected Sept 2017**
PhD Candidate: Computer Science
Advisors: Nir Piterman & Alexandra Silva
Interests: Formal Verification, Temporal Logic,
and Model Checking of Infinite-State Systems
- Florida State University** **Dec 2012**
Bachelor of Science: Computer Science, Philosophy
Minor: Mathematics
Summa cum laude, Phi Beta Kappa; **3.9 GPA**
Honors Thesis Title:
“Temporal Property Verification”
- RESEARCH**
- Amazon Web Services** **New York, NY June 2015 - Sep 2015**
Security Research Scientist Intern
- Analyzing the application of static analysis methods to resolve a wide variety of SSL certification validation bugs which are pervasive in Amazon’s EC2 Java client library, Elastic Load Balancing API Tools, and Amazon Flexible Payments SDK.
- Microsoft Research** **Cambridge, UK Oct 2013 - May 2014**
Contractor
- Conducted further research and development to extend the functionality and applicability of the Temporal Logic Verifier **T2** to incorporate strictly more expressive logics such as Fair-CTL and CTL*.
- Microsoft Research** **Cambridge, UK Jan 2013 - April 2013**
Programming Languages Research Intern
- Discovered how procedure summarization, precondition synthesis, and traditional bottom up approaches complement each other to improve the performance and applicability of novel Computation Tree Logic verification tools.
- Microsoft Research** **Cambridge, UK May 2012 - Aug 2012**
Programming Languages Research Intern
- Encoded temporal property verification as program analysis task. Produced an encoding which, with the use of recursion and nondeterminism, enables off-the-shelf program analysis tools to naturally perform the reasoning necessary for proving temporal properties in T2. Directed under **Byron Cook**.
- Florida State University** **Tallahassee, FL Sep 2010-Aug 2012**
Research Assistant
- Assisted in the exploitation of parallelism found within functional programming in order to construct an intrinsically parallel language which exhibits intuitive parallel syntax. Directed under Professor **Robert van Engelen**.
 - Created a statically-typed functional language that integrates seamlessly with C/C++. The language will have a functional declarative style, will be highly

efficient to translate and execute, provides explicit and implicit parallel constructs, list comprehensions, and pattern matching.

Tufts University

Medford, MA June 2010-Aug 2010

Computer Science Research Intern

Participant of the Computer Research Association - DREU for Undergraduates

- Constructed a system that crawls the web in order to find participants who are involved in computer science or engineering academia.
- Utilized machine learning algorithms for automatic text-based classification in attempt to identify females among an uneven gender distribution of computer scientists.

PUBLICATIONS Refereed Conferences

“T2: Temporal Property Verification”

M. Brockschmidt and H. Khlaaf with B. Cook and N. Piterman. *Tools and Algorithms for the Construction and Analysis of Systems*, Eindhoven, Netherlands, 2016.

“On Automation of CTL* Verification for Infinite-State Systems”

H. Khlaaf with B. Cook and N. Piterman. *Computer Aided Verification*, San Francisco, USA, 2015.

“Fairness for Infinite-State Systems”

H. Khlaaf with B. Cook and N. Piterman. *Tools and Algorithms for the Construction and Analysis of Systems*, London, UK, 2015.

“Faster Temporal Reasoning for Infinite-State Programs”

H. Khlaaf with B. Cook and N. Piterman. *Formal Methods in Computer-Aided Design*, Lausanne, Switzerland, 2014.

Refereed Workshops

“Abstract: Fairness for Infinite-State Systems”

H. Khlaaf with B. Cook and N. Piterman. *14th International Workshop on Termination*, Vienna, Austria, 2014.

Media

“Cultural Ramifications of Technical Interviews.”

H. Khlaaf. *Model View Culture*, Issue 23, June 2015.

TEACHING

University College London

London, UK September 2016-Present

Teaching Assistant

- *COMP204P: Systems Engineering I* Fall 2016
- *COMP205P: Systems Engineering II* Spring 2017

Florida State University

Tallahassee, FL August 2011-Dec 2012

Teaching Assistant (20 hours/week)

- *Instructed recitation sessions, assessed assignments, projects, exams, and held daily office hours to assist students.*

COP4342 Unix Tools

Fall 2012

COP3330 Object Oriented Programming

Spring 2012

COP3330 Object Oriented Programming Fall 2011
COP3353 Introduction to Unix Fall 2011

INDUSTRY **Animal Genetics Inc.** **Tallahassee, FL April 2011-May 2012**
Lead Programmer and Web Designer

- Designed and engineered back end and front end of an improved upcoming site.
- Constructed a fully functional online ordering system with a thoroughly integrated user account system.

TALKS

Technical

- *University of Kent* *Dec 2016 Canterbury, UK*
Speaker: “Verifying Increasingly Expressive Temporal Logics for Infinite-State Systems”
- *TACAS* *April 2016 Eindhoven, Netherlands*
Speaker: “T2: Temporal Property Verification”
- *Computer Aided Verification* *July 2015 San Francisco, USA*
Speaker: “On Automation of CTL* Verification for Infinite-State Systems”
- *TACAS* *April 2015 London, UK*
Speaker: “Fairness for Infinite-State Systems”
- *University of Leicester* *March 2015 Leicester, UK*
Speaker: “Verifying Fairness for Infinite-State Systems”
- *Formal Methods in Computer-Aided Design* *Oct 2014 Lausanne, Switzerland*
Speaker: “Faster Temporal Reasoning for Infinite-State Systems”
- *14th International Workshop on Termination* *July 2014 Vienna, Austria*
Speaker: “Fairness for Infinite-State Systems”
- *F#unctional Londoners* *March 2013 London, UK*
Guest Speaker: “T2: A Temporal Property Verifier in F#”

Non-Technical

- *Microsoft Research* *Dec 2012 Cambridge, UK*
Keynote Speaker at Think Computer Science 2012
- *Long Road Sixth Form College* *July 2012 Cambridge, UK*
Invited Guest Speaker

COMMUNITY

Program Committee

Principles of Programming Languages AE *October 2016*
Computer-Aided Verification AE *May 2016*
Tiny Transactions on Computer Science (V. IV) *Jan 2016*
Tiny Transactions on Computer Science (V. II) *March 2013*

Sub-Review Committee

Tools and Algorithms for the Construction and Analysis of Systems *Nov 2015*
International Conference on Computer-Aided Verification *March 2015*
International Conference on Computer-Aided Verification *February 2014*
International Conference on Computer-Aided Verification *February 2013*
Formal Methods in Computer-Aided Design *July 2012*

Program Chair*Tiny Transactions on Computer Science (V. III)*

May 2014 - May 2015

Activities & Services

<i>UCL - Athena Swan PhD Student Representative</i>	<i>2016-Present</i>
<i>UCL - PPLV PhD Student Representative</i>	<i>2015-Present</i>
<i>UCL - PhD Student Representative</i>	<i>2013-2015</i>
<i>Upsilon Pi Epsilon - Florida State University Chapter President</i>	<i>2012</i>
<i>ACM - Florida State University Chapter Undergraduate Vice President</i>	<i>2012</i>
<i>ACM - Florida State University Chapter Historian</i>	<i>2011</i>
<i>ACM - Florida Sate University Chapter Graphic Designer</i>	<i>2010</i>

Professional Memberships

Association for Computing Machinery - Student Member
ACM SIGPLAN - Student Member
 Phi Beta Kappa

AWARDS AND HONORS

<i>University College London - Research Excellence Studentship</i>	<i>Sept 2013</i>
<i>National Science Foundation - Graduate Research Fellowship</i>	<i>Sept 2013</i>
<i>Summer School of Marktoberdorf - Attendee</i>	<i>Aug 2013</i>
<i>CRA-W/CDC/SIGPLAN Mentoring Workshop at POPL Scholarship</i>	<i>Jan 2013</i>
<i>Departmental Travel Grant - Grace Hopper Celebration</i>	<i>Oct 2012</i>
<i>CRA-W/CDC/SIGPLAN Mentoring Workshop at POPL Scholarship</i>	<i>Jan 2012</i>
<i>Fall 2011 Bess Ward Honors Thesis Award</i>	<i>Fall 2011</i>
<i>Departmental Travel Grant - Grace Hopper Celebration</i>	<i>Nov 2011</i>
<i>Florida State University President's List</i>	<i>2010 - 2012</i>
<i>Florida Medallion Scholar</i>	<i>2008 - 2012</i>
<i>Florida State University Dean's List</i>	<i>2008 - 2012</i>
<i>R M Beall Sr Charitable Foundation recipient</i>	<i>2008 - 2012</i>
<i>National SMART Grant recipient</i>	<i>2008 - 2011</i>

SKILLS

Languages & Software: C++, C, F#, Perl, LLVM IR, Haskell, Prolog, Scheme, C#, Java, PHP, ASP, Javascript, Bash Script.
Operating Systems: Adept in Windows, Unix, Linux, and Mac OS.
Other: Fluency in the Arabic Language