Lilian de Greef

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SUMMARY

I am a PhD student at the University of Washington with an **NSF fellowship** and **Microsoft Research PhD fellowship**, advised by Shwetak Patel in the **Ubiquitous Computing Lab**. Within the broad spectrum of ubiquitous computing, my interests include **computer vision, embedded systems, machine learning,** and **HCI**. My current research focuses on lowering the access barrier to medical care, using low cost commodity hardware with trained image analysis and innovative user interface design.

EDUCATION

University of Washington 9/2012 – present
Ph.D. Student, Computer Science
Area: Ubiquitous Computing
Advisor: Dr. Shwetak Patel

Harvey Mudd College 8/2008 – 5/2012
Bachelor of Science, Computer Science
Graduated with distinction
GPA: 3.6/4.0

HONORS AND AWARDS

- National Science Foundation Graduate Research Fellowship: 2013 – present
- Microsoft Research PhD Fellowship: 2015 – 2017
- Microsoft Research Graduate Women's Scholar: 2013 – 2014
- Marilyn Fries Endowed Regental Fellowship: 2012 – 2013
- President Scholar's Program (4 year full-tuition merit scholarship): 2008 – 2012
- University of Washington CSE Three-Sixty Fellowship Fund: 2012
- People's Choice Prize at UW CSE's Industry Affiliates Meeting: 2014
- Graduated Harvey Mudd College with honors in computer science: 2012
- Graduated Harvey Mudd College with honors in humanities, social sciences, and the arts: 2012
- Dean's List: Spring 2009, Fall 2009, Fall 2010, Fall 2011, Spring 2012

PUBLICATIONS

Taylor, J.A., Stout, J.W., **de Greef, L**., Goel, M., Patel, S., Chung, E.K., Koduri, A., McMahon, S., Dickerson, J., Simpson, E.A. and Larson, E.C., 2017. *Use of a Smartphone App to Assess Neonatal Jaundice.* Pediatrics, p.e20170312.

de Greef, L., Goel, M., Seo, M.J., Larson, E.C., Patel, S.N., Stout, J.W., Taylor, J.A. *BiliCam: Using Mobile Phones to Monitor Newborn Jaundice*. ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp) 2014 ***Best paper nominee***

Boulanger, C., Boulanger, A., **de Greef, L.**, Kearney, A., Sobel, K., Transue, R., Sweedyk, Z., Dietz, P., Bathiche, S. *Stroke Rehabilitation with a Sensing Surface*. 2013 ACM SIGCHI Conference on Human Factors in Computing Systems Proceedings (CHI) 2013

Berezny, N., **de Greef, L.**, Jensen, B., Sheely, K., Sok, M., Lingenbrink, D., Dodds, Z. *Accessible Aerial Autonomy.* IEEE International Conference on Technologies for Practical Robot Applications (TePRA) 2012

PROJECT EXPERIENCE

Graduate Research, University of Washington 9/2012 – present
Advisor: Shwetak Patel
Currently investigating how to use smartphone cameras to screen newborns for dangerous levels of jaundice, or yellowing of the skin, in close collaboration with UW Medical Center. Developed data collection procedures and software, applying computer vision to parse images, and using machine learning to estimate jaundice levels. Thus far in two publications, two patents, commercial development.

Research Intern, Microsoft Research Redmond 6/2015 – 9/2015
Manager: Merrie Morris
Conceived and developed a prototype of TeleTourist, a system that uses video calls with strangers to share experiences for people with mobility restrictions. Interviewed individuals with mobility restrictions as formative work, designed system features, and implemented a subset of them for a prototype. Presented the work as a poster at CSCW 2016 and resulted in a patent.

Research Science Intern, Amazon 6/2014 – 9/2014
Manager: Jim Curlander
Designed, developed, and evaluated eyes and head tracking based user interface elements for enhanced reality interfaces in fulfillment centers. Combined concepts from computer graphics with HCI Produced several prototypes, demonstrated the system in its intended environment. Resulted in a patent.

Microsoft Computer Science Clinic, Harvey Mudd College 9/2011 – 5/2012
Faculty Advisor: Z Sweedyk
Microsoft Liaison: Cati Boulanger
Designed and developed technology to motivate and assess rehabilitation for stroke patients affected in their upper extremities, using the Microsoft Surface in team of four. Interviewed stroke patients and physical therapists, designed a rehabilitative game played on the Microsoft Surface, produced a prototype, and ran user study with stroke patients.

Undergraduate Research, Harvey Mudd College 6/2011 – 8/2011
Advisor: Zachary Dodds
Created and explored vision-based localization algorithms for aerial robots, in team of five students. Prototyped autonomous cooperation between ground-based and airborne robots. Demonstrated localization for a quadrotor helicopter toy using only a built-in camera.

PATENTS

Colburn, R.A., Curlander, J.C., Gorumkonda, G.K., de Greef, L., inventors; Aug. 2017. **Perspective-Aware Projected User Interfaces**. United States patent US 9723248 B1.

Quinn, K.I., Morris, M., Venolia, G., Tang, J., de Greef, L., inventors; Mar. 2017. **Immersive Telepresence**. United States patent US 9591260 B1.

Taylor, J.A., Patel, S.N., Stout, J.W., de Greef, L**.**, Goel, M., Larson, E.C., inventors; Dec. 2015. **Systems, Devices, and Methods for Estimating Bilirubin Levels**. United States patent US 20150359459 A1.

Taylor, J.A., Patel, S.N., Stout, J.W., de Greef, L**.**, Goel, M., Larson, E.C., inventors; Oct. 2014. **Estimating Bilirubin Levels**. United States patent US WO2014172033 A1.

SKILLS

Programming: Python, C++, OpenCV, Java, Arduino, SystemVerilog, Objective-C , C#, Scheme, Prolog
Software: SolidWorks, Autodesk Inventor, Photoshop, Autodesk 3DS Max
Hardware: 3D printing, laser cutting, eTextiles fabrication, machining for metal and wood

TALKS

BiliCam: Using Mobile Phones to Monitor Newborn Jaundice. ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), Seattle, WA, 16 September 2014

Using Mobile Technology to Monitor Bilirubin and Diagnose Jaundice in Infants. Global WACh Seminar Series, Seattle, WA, 12 February 2014 **(Invited Speaker)**

Ubiquitous Computing: Our Approach to Technology Innovations. Northwest Regional Women in Computing (NWrWIC), Portland, OR, 19 October 2013 **(Distinguished Speaker)**

Stroke Rehabilitation with the Microsoft Surface. Harvey Mudd College Projects Day, Claremont, CA, 1 May 2012.

Microsoft Surface for Stroke Rehabilitation. Celebration of Women in Computing in Southern California (CWIC-SoCal), Santa Ana, CA, 14 April 2012.

Accessible Aerial Autonomy. Celebration of Women in Computing in Southern California (CWIC-SoCal), Santa Ana, CA, 14 April 2012.

Accessible Aerial Autonomy. Harvey Mudd College Computer Science Colloquium, Claremont, CA, 8 September 2011

LogiSketch: An Intuitive System for Sketching and Simulating Logic Circuits. Harvey Mudd College Computer Science Colloquium, Claremont, CA, 21 October 2010

DEMONSTRATIONS

Berezny, N., **de Greef, L.**, Jensen, B., Sheely, K., Sok, M., Dodds, Z. *Accessible Aerial Autonomy via ROS*. Association for the Advancement of Artificial Intelligence (AAAI), San Francisco, CA, June 2011

Berezny, N., **de Greef, L.**, Jensen, B., Sheely, K., Sok, M., Dodds, Z. *Autonomous Robot Cooperation*. Global Conference on Educational Robotics (GCER), Orange County, CA, July 2011

SERVICE

K-12 Outreach, University of Washington Open House, Tours, Demos	2012 – present
Student Volunteer, UbiComp Conference	2013, 2014, 2015
Graduate Student Co-Coordinator, University of Washington CSE	2013 – 2015
Alumni Interviewer, Harvey Mudd College Admissions Office	2012 – 2014
Role Model & Mentor, she++	2012 – 2013
Mentor, WitsOn (Women in Technology Sharing Online)	2012 – 2013