Parneet Kaur

Ph.D. Candidate

http://parneetk.github.io/

Education

2014–present **Ph.D. Candidate, Electrical and Computer Engineering**, *GPA: 3.79/4.0*.
Rutgers University, Piscataway, NJ
Advisor: Dr. Kristin J. Dana

2013 **M.S., Electrical and Computer Engineering**, *GPA: 3.75/4.0*.
Rutgers University, Piscataway, NJ
Thesis: Automated bridge deck evaluation from ground penetrating radar scans
Advisor: Dr. Kristin J. Dana

2007 **B.E., Electronics and Communication Engineering**, *Aggregate: 81%*.
Visvesvaraya Technological University, Bangalore, India

Experience

Research

Sep 2014 – Present **Graduate Assistant**, *Computer Vision Lab*, Rutgers University, NJ.
- Developing computational models to link skin microbiome to skin appearance using multi-modal skin imaging and sparse coding.
- Developing multi-view clustering techniques for high-dimensional heterogeneous datasets.
- Using deep learning for automated classification of skin layers using confocal microscopy images.
- Collaborating with Johnson & Johnson.

Oct 2011 – Jun 2013 **Graduate Assistant**, *Center for Advanced Infrastructure and Transportation, and Computer Vision Lab*, Rutgers University, NJ.
- Developed software for analysis of ground penetrating radar (GPR) scans for automatic rebar detection to generate bridge deck deterioration maps using Robotic Assessment Bridge Inspection Tool (RABIT).
- Integrated machine learning classification using image-based gradient features and robust curve fitting of the rebar hyperbolic signature to locate rebars in the GPR images.
- Funded by Federal Highway Administration.

Teaching

Summer 2013 Spring 2012 **Teaching Assistant**, *Department of Electrical and Computer Engineering*, Rutgers University, NJ.
- *Programming Methodology I Lab*: Instructed a lab of about 15 students, designed and graded programming assignments, and held office hours.
- *Software Engineering*: oversaw 12 semester-long projects, graded exams and project reports, and held office hours (70+ students).

Industry

Jun 2011 – Sep 2011 **Intern**, *Broadcom Corporation*, Yardley, PA.
- Developed a software prototype for video stabilization in high-definition televisions.
- Implemented visualization of various motion vector fields.
- Analyzed impact of decimation and interpolation techniques on frame rate conversion algorithm.

Oct 2007 – Sep 2009 **Software Engineer**, *Robert Bosch Engineering and Business Solutions Limited*, India.
- Developed software for real-time embedded systems deployed in automobile platforms.
- Conducted requirements analysis, software design and implementation, and software peer reviews, unit and integration testing.

Publications

P. Kaur, K.J. Dana, and G.O. Cula. From photography to microbiology: Eigenbiome models for skin appearance. In *Computer Vision and Pattern Recognition Workshops (CVPRW), 2015 IEEE Conference on*, pages 1–10, June 2015.

P. Kaur, K.J. Dana, F.A. Romero, and N. Gucunski. Automated gpr rebar analysis for robotic bridge deck evaluation. *Cybernetics, IEEE Transactions on*, PP(99):1–1, 2015.

Posters

Parneet Kaur, Kristin J. Dana, Gabriela Oana Cula. *From Photography to Microbiology: Eigenbiome Models for Skin Appearance*. BioImage Computing Workshop, IEEE conference on Computer Vision and Pattern Recognition (CVPR). (Jun 2015)

Parneet Kaur, Kristin J. Dana, Francisco A. Romero, Nenad Gucunski. *Computer vision for automated bridge deck evaluation from Ground Penetrating Radar Scans*. 3rd GNY Area Multimedia and Vision Meeting, The City College of New York, New York, USA. (Jun 2013)

Parneet Kaur, Prateek Prasanna, Kristin J. Dana. *Computer Vision for automated bridge deck inspection*. 7th Annual Perceptual Science Forum, Rutgers University. (May 2013)

Parneet Kaur, Prateek Prasanna, Kristin J. Dana. *Applications of Computer Vision in Civil Engineering*. First Multimedia and Vision Meeting for the Greater New York area, Stevens Institute of Technology New York, USA. (Feb 2012)

Parneet Kaur, Prateek Prasanna, Kristin J. Dana. *Real Time Hand Gesture Recognition and Blink Detection*. Rutgers Day-2010 (with demonstration). (Apr 2011)

Graduate Coursework

Machine Vision, Advanced Computer Vision, Machine Learning, Pattern Recognition, Convex Optimization, Regression Analysis, Digital Signals and Filters, Optimum Signal Processing, Stochastic Signals & Systems, Computer Architecture

Technical Skills

- Programming: C, C++, MATLAB, OpenCV, MatConvNet
- IDE: Visual Studio, XCode
- Configuration Management: GitHub, Subversion, Rational Clear Case

Awards

- Google Anita Borg Memorial Scholarship. (2016)
- TA/GA Professional Development Fund Award, Rutgers University. (2016)
- Mentor of a middle school student, who received an honorable mention for a national level competition by ProjectCSGIRLS. Project: Braille translation of algebraic equations from images. (2015)
- Charles Pankow National Award for Innovation, awarded by the American Society of Civil Engineers (ASCE) to Robotic Assessment Bridge Inspection Tool. Contribution: analysis of GPR scans. (2014)

Extracurricular Activities

- Co-founder and President, Novice-to-Expert coding club at Rutgers University. (Spring 2016)
- Internal Vice President, Society of Women Engineers Graduate section (SWE Grad) at Rutgers University. (Nov 2015 - present)
- Mentor for the 1000 Girls, 1000 Futures program from New York Academy of Sciences, The Academy at Rutgers for Girls in Engineering & Technology, ProjectCSGIRLS and SWE Grad.