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

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

May 2016 – Aug 2016 **Student Associate**, *Vision Systems Group, SRI International*, Princeton, NJ.
- Project: Skin Analysis using Convolutional Neural Networks for a major cosmetic company.

Oct 2011 – Jun 2013 **Graduate Assistant**, *Center for Advanced Infrastructure and Transportation, and Computer Vision Lab*, Rutgers University, NJ.
- Analyzed ground penetrating radar (GPR) scans to generate bridge deck deterioration maps using Robotic Assessment Bridge Inspection Tool funded by Federal Highway Administration.
- 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.

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

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, unit and integration testing, and software peer reviews.

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

C, C++, MATLAB, Caffe, MatConvNet, OpenCV, Visual Studio, Git

Publications

P. Kaur, K.J. Dana, and G.O. Cula. Hybrid deep learning for confocal microscopy skin images. In *Pattern Recognition (ICPR), 23rd International Conference on*, To appear in Dec. 2016.

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.

P. Kaur, K.J. Dana, and G.O. Cula. Appearance-driven multiview co-clustering. *Manuscript in Preparation*.

Posters

Parneet Kaur, Kristin J. Dana, Gabriela O. Cula. *Computational models to link skin appearance and skin microbiome*. Women in Computer Vision Workshop, IEEE conference on Computer Vision and Pattern Recognition (CVPRW). (Jun 2016)

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)

Awards

- Google travel grant to attend Grace Hopper Conference for Women In Computing. (2016)
- IAPR travel grant to present paper in International Conference on Pattern Recognition (2016)
- Google Anita Borg Memorial Scholarship. (2016)
- TA/GA Professional Development Fund Award, Rutgers University. (Spring 2016, Summer 2016)
- Coached and designed project for a middle school student, who received an honorable mention for a national level competition by ProjectCSGIRLS. (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. (Mar. 2016 - present)
- Internal Vice President, Society of Women Engineers Graduate Chapter 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 and ProjectCSGIRLS.