

Upender Kalwa

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Summary

Actively seeking full-time opportunities. I am a PhD student at Iowa State University in the Department of Electrical Engineering, specializing in Bioengineering. My research involves in applying computer vision and machine learning techniques in analyzing biological samples, applied microfluidics, and related areas. I am an Oracle certified Java Professional and PL/SQL Developer Associate with 2 years of industry experience.

Education

Doctor of Philosophy in Electrical Engineering Jan 2015 - expected Dec 2018
Iowa State University, Ames
GPA: 3.84 until now

Master of Engineering in Electrical Engineering Jan 2015 - Aug 2017
Iowa State University, Ames
GPA: 3.86

Bachelor of Technology in Electrical and Electronics Engineering Aug 2008 - May 2012
Jawaharlal Nehru Technological University, Hyderabad, India
GPA: 3.45

Work Experience

Graduate Research Assistant

Iowa State University Jan 2015 - expected Dec 2018

- Created an Android application to classify a mole image as benign or suspicious of melanoma taken using a camera by writing efficient image processing algorithms in Java employing OpenCV and its machine learning modules
- Developed image processing algorithms in Python using GPU acceleration and OpenCV libraries for parallel processing in a plant pathogen project
- Developed efficient Computer Vision/Image Processing algorithms to analyze and visualize the pathogen movement using Python and Plotly
- Designed a GUI application with automation capabilities for crucial operations using Python, Flask, and Electron for our in-house developed instrument that reduces the manpower by almost 50%
- Have taken graduate level MEMS and device fabrication courses and have hands-on experience with device fabrication

Systems Engineer

Tata Consultancy Services (Hyderabad, India) Dec 2012 - Dec 2014

- Written complex PL/SQL scripts and Java programs to handle migration issues within the deadlines to improve customer satisfaction
- Automated daily order flow error fixes using PHP, PL/SQL, and ODBC drivers, which saved the client approximately 20% of the man-hours
- Created a website to display the status of all module servers, CRM orders, and Oracle databases using web technologies like HTML, CSS, and jQuery for real-time monitoring
- Performed activities as a backup admin for billing servers and diagnosed critical issues

Technical Skills

Languages: Python, Java, C++, Matlab, R, HTML, CSS, Javascript, SQL, PL/SQL

Web Frameworks: Bootstrap, Angular 5, Ionic, Apache Cordova, Flask

Data Analytics Tools: Tensorflow, Theano, Keras

Certifications

- Oracle Certified Associate, PL/SQL Developer, Oracle - Nov 2014
- Oracle Certified Professional, Java SE 6 Programmer, Oracle - Oct 2014
- Oracle Certified Expert, Database SQL, Oracle - Oct 2014
- Certificate of Completion for "*Data Science Foundations: Python Scientific Stack*" and "*Building Deep Learning Applications with Keras 2.0*", Lynda.com - Dec 2017

Journal Publications

- Jensen, J.P., **Kalwa, U.**, Pandey, S. and Tylka, G.L., 2018. Avicta and Clariva affect the biology of the soybean cyst nematode, *Heterodera glycines*. Plant Disease, (ja).
- Jensen, J.P., Beeman, A.Q., Njus, Z.L., **Kalwa, U.**, Pandey, S. and Tylka, G.L., 2018. Movement and Motion of Soybean Cyst Nematode *Heterodera glycines* Populations and Individuals in Response to Abamectin. Phytopathology, pp. PHYTO-10.
- Njus, Z., Kong, T., **Kalwa, U.**, Legner, C., Weinstein, M., Flanigan, S., Saldanha, J. and Pandey, S., 2017. Flexible and disposable paper-and plastic-based gel micropads for nematode handling, imaging, and chemical testing. APL Bioengineering, 1(1), p.016102.
- Kong, T., Flanigan, S., Weinstein, M., **Kalwa, U.**, Legner, C. and Pandey, S., 2017. A fast, reconfigurable flow switch for paper microfluidics based on selective wetting of folded paper actuator strips. Lab on a Chip, 17(21), pp.3621-3633.
- Kong, T., Brien, R., Njus, Z., **Kalwa, U.** and Pandey, S., 2016. Motorized actuation system to perform droplet operations on printed plastic sheets. Lab on a Chip, 16(10), pp.1861-1872.
- Njus, Z., Feldmann, D., Brien, R., Kong, T., **Kalwa, U.** and Pandey, S., 2015. Characterizing the effect of static magnetic fields on *C. elegans* using microfluidics. Advances in Bioscience and Biotechnology, 6(09), p.583.

Awards and Activities

- Received **Star of the Quarter** and **On the Spot** awards for process and performance improvements done in a quarter while working in TCS
- Organized a seminar and workshop on wired robotics and conducted aptitude competitions for high school students of Sri Krishnaveni Talent School.
- Organized workshops on CANSAT in Hyderabad.