JEFFREY B. COLE

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WORK HISTORY

Microsoft Robotics **Redmond, WA**
Software Development Engineer II **1/08 to present**

- Conceived and built a person detection, tracking, and gesture recognition system using the Kinect depth camera technology and a virtual touch-pad (patent filed June 2011)
- Designed and built a motion detection algorithm for quickly identifying people in dynamic scenes
- Extensive Silverlight UI work: building a library of user controls and end-to-end applications
- Constant cross-team collaboration with designers, testers, and project managers to iteratively develop discoverable and intuitive user interaction models for gesturing and speech

Games By Post **Seattle, WA**
Founder / CEO **1/11 to present**

- Conceived, designed, and built 2 mobile games called Words By Post and Chess By Post
- Free, cross-platform, competitive mobile turn-based games available for Windows, Android, and iPhone
- Extensive backend server work hosting a dedicated machine running a full stack of Apache, MySQL and PHP for managing all game states and the game engine in the cloud
- Each client-side version of the applications is written in the native languages of their respective phones: Silverlight, Java, and Objective-C
- Adoption of these games has been remarkable with over a quarter-million games played within the first 4 months of launch, 800 new users added per day, and a user retention rate of over 50%
- Received the 2011 “Best Use Of Windows Phone Features” award from Microsoft for Words By Post

Microsoft Research **Redmond, WA**
Intern **6/07 to 9/07**

- Developed and tested algorithms for voice recognition systems
- Programmed insertion, query, and scoring algorithms for low power databases in embedded devices
- Conceived and demonstrated uses of computer vision for small personal computing devices

University of Washington **Seattle, WA**
Research Assistant / Teaching Assistant **7/05 to present**

- Developing image processing algorithms for 3D pose estimation from monocular image sequences.
- Parallel programming for real-time video processing using a Linux cluster
- Work on image processing algorithms for automatic detection of diabetic retinopathy
- Non-linear dimensionality reduction for useful display of hyperspectral images
- Explore techniques for object tracking in highly cluttered video sequences
- Teaching assistant for an undergraduate course on digital image processing

iConcertCal Inc. **Seattle, WA**
Co-Founder / President **9/06 to present**

- Conceived, designed, and built a cross-platform plug-in for iTunes that monitors a user’s music library and creates a personalized calendar of upcoming concerts in their town
- Extensive programming work improving features and functionality, releasing new versions, customer support, business relations with companies providing concert data, publicity, and website maintenance
- iConcertCal has been reviewed extensively and was recently featured in Spin Magazine, GQ, Paste Magazine, and Esquire
- iConcertCal was downloaded more than 100,000 times within the first 3 months of being publicly available

BAE SYSTEMS SPECTRAL SOLUTIONS **Honolulu, HI**
Optical Engineer **7/03 to 7/05**

- Developed lab procedures and software for characterization and calibration of hyperspectral and multispectral imaging systems for automatic target detection in remote sensing and medical imaging
- Characterized noise parameters of various CCD technologies
- Developed lab procedures and software to characterize and correct for geometric lens distortions
- Developed procedures and software to characterize and align optical components in imaging systems

KOLNER ELECTRO OPTICS RESEARCH LABORATORY at UC DAVIS **Davis, CA**
Optics Lab Assistant **1/03 to 6/03**

- Designed and built a spatial profiler to analyze laser beam widths using a CCD camera
- Designed, programmed and developed a graphical user interface for spatial profiler using LabVIEW
- Automatically generates primary and secondary axis, intensity cross-sections, 3-D intensity graphs and Gaussian curve fits to determine a beam's geometry
- Wrote an extensive user's manual (www.leorg.ucdavis.edu/articles/beamprofilerusermanual.pdf)
- Built and configured an HP-UX server for lab's local area network

UNITED STATES GEOLOGICAL SURVEY **Menlo Park, CA**
Computer Assistant Intern **6/01 to 10/01**

- Designed and implemented software applications for the study of water flow in the San Francisco Bay
- The programs generated polygon mesh-grids from topographic images and optimized mesh characteristics for fluid flow analysis
- Wrote an extensive user guide to explain programs and the process of polygon mesh-grid creation
- Performed fieldwork and collected water flow data in the San Francisco Bay

EDUCATION

MASTERS IN ELECTRICAL ENGINEERING (2007) University of Washington
Specializing in digital signal processing and image analysis

BACHELOR OF SCIENCE IN OPTICAL ENGINEERING University of California, Davis
Graduated with Honors, June 2003
Ranked 1st in graduating class of optical engineers

AWARDS AND HONORS:
Bronze Medal for Innovation from BAE Systems for developing a radial distortion calibration technique
Gray Fellowship for Electrical Engineering (2005)
Departmental Citation for Outstanding Undergraduate Accomplishment in Optical Science Engineering (2003)
Sanders Wilson Award for Undergraduate Achievement from the Department of Applied Science (2003)
Golden Key Honor Society (1999-2003)

RELATED COURSEWORK:
Graduate Level: Digital Signal Processing, Probability and Random Processes, Data Structures and Algorithms, Artificial Intelligence, Statistical Learning and Pattern Recognition, Computer Vision, Image Processing and Computer Systems, Computer Graphics, Advanced Color Image Processing. Undergraduate Level: Digital Image Processing and Computer Vision, Advanced Numerical Methods and Algorithms, Optical System Design, Scientific Writing

COMPUTER SKILLS

Programming Languages: C#, C/C++, Silverlight, PHP, MySQL, Objective-C, Java, JavaScript, Flash, Matlab, HTML
Platforms: Windows, Linux

JOURNAL PAPERS

N. P. Jacobson, M. R. Gupta, J. B. Cole, “Linear fusion of image sets for display,” IEEE Trans. On Geoscience and Remote Sensing, to appear

CONFERENCE PAPERS

Kunal Mukerjee, Shankar L. Regunathan, Jeffrey Cole: Algorithms for speech indexing in Microsoft Recite: INTERSPEECH 2009: 1479-1482

Jeffrey B. Cole, David P. Grimes, Rajesh P.N. Rao, "Learning Full-Body Motions from Monocular Vision: Dynamic Imitation in a Humanoid Robot," IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS (2007)

M. J. DeWeert, J. B. Cole, A. W. Sparks, A. Acker, "Photon transfer methods and results using EMCCDs," SPIE 49th Annual Conference, Aug 2004

E. Tsiang, J. B. Cole, M. J. DeWeert, A. W. Sparks, J. Fisher, D. Yoon, G. Sawai, T. Glover, "Application of a figure-of-merit for optical remote sensors to an airborne hyperspectral sensor," SPIE 49th Annual Conference, Aug 2004

PATENTS

J. Cole – “Virtual Touchpad Using A Depth Camera”, MS#331609.01 filed Apr2011

K. Mukerjee, D. Thompson, B. Hertzberg, J. Cole, B. Meeder – “Self-Compacting Pattern Indexer: Storing, Indexing and Accessing Information In A Graph-Like Data Structure”, filed Oct 2007, ref number: 11/923,430