Kiran George

Associate Professor, Computer Engineering
California State University, Fullerton
Tel: 657 278 2640, Email: kgeorge@fullerton.edu
Website: *http://kgeorge.ecs.fullerton.edu*

EDUCATION

Ph.D. Wright State University, Dayton, Ohio – 2007

M.S. Wright State University, Dayton, Ohio – 2002

B.S. Bharathiar University, India – 1999

RESEARCH AND TEACHING EXPERIENCE

08/2013 – present	**Associate Professor**, Computer Engineering Program, California State University, Fullerton
08/2007 – 07/2013	**Assistant Professor**, Computer Engineering Program, California State University, Fullerton
06/2003 – 06/2007	**Research Assistant**, Dept. of Electrical Engineering, Wright State University, Dayton, Ohio
06/2003 – 06/2005	**Graduate Project Assistant**, Receiver-On-a-Chip (ROC) project, funded by Air Force research lab (AFRL)
06/2003 – 08/2003	**Graduate Teaching Assistant**, Dept. of Electrical Engineering, Wright State University, Dayton, Ohio
09/2000 – 06/2003	**Graduate Teaching Assistant**, Dept. of Management Science and Information Systems, Wright State University, Dayton, Ohio
03/2000 – 08/2000	**Teaching Assistant**, Computer Literacy and Office Automation class Dept. of Computer Science, Wright State University, Dayton, Ohio
03/2000 – 05/2000	**Tutor**, University Disability Center, Wright State University, Dayton, Ohio
03/1999 – 02/2000	**Trainee**, Cochin Refineries, India

RESEARCH INTERESTS

- **Brain-Computer Interface (BCI) Technology:**
  Research on BCI based cognitive system architecture:
  - § Sensing and Decoding of Visual Stimuli using Commercial Brain Computer Interface Technology with a Cognitive Level Function
  - § Automated Sensing, Interpretation and Conversion of Facial and Mental Expressions into Text Acronyms using Brain-Computer Interface Technology

- **Biomedical Research:**
  - § Design, Implementation and Evaluation of a Brain-Computer Interface Controlled Mechanical Arm for Rehabilitation (collaborative project with Western Digital)
  - § Real-Time User-Controlled Miniature Optical System
  - § Intelligent Indoor Air Quality and Ventilation System

- **Wideband Digital Receivers**:
  - § Improve the performance of the digital receivers by utilizing a supervised learning technique augmented with *intrinsic*, *semantic,* and *episodic* memory.
  - § High-resolution spectral measurement for digital wideband receivers through amplitude comparison and empirical frequency estimation
  - § Modular test RF instrumentation and measurement for a hybrid computing digital wideband receiver
  - § Design and implementation of intelligent pulsed radar receiver (collaborative project with Mercury Defense)

- **High-Performance Computing:**
  - § Acceleration of CUDA Enabled Smith-Waterman Application for Sequence Alignment using MPI on a GPU Cluster
  - § Performance Measurement of a High-Performance Computing System Utilized for Electronic Medical Record Management

HONORS AND AWARDS

2012 Recipient of *NSF Faculty Early Career Development (CAREER)* award

2012 Recognized for Service
(Faculty Recognition: Scholarly & Creative Activity event, April 2012)

2011 Recognized for Sponsoring Student Research and Creative Activities
(Faculty Recognition: Scholarly & Creative Activity event, April 2011)

2010 Recognized for Outstanding Record in Scholarly & Creative Activity
(Faculty Recognition: Scholarly & Creative Activity event, April 2010)

2009 Accepted into “Marquis Who's Who in America", (2010, 64th Anniversary Edition)

2009 Recipient of Best Senior Design Project Advisor: Computer Engineering

2008 Recipient of Best Senior Design Project Advisor: Computer Engineering

2007 Accepted into “Marquis Who's Who in America", (2008, 62nd Anniversary Edition)

2006 Recipient of the Dean’s Award for Outstanding Graduate Student (Ph. D. Engineering Program)

2006 Accepted into “Marquis Who's Who in America", (2007, 61st Anniversary Edition)

2006 Accepted into "Strathmore's Who's Who" Registry for Outstanding Professionals (2006-2007, 13th Anniversary Edition)

2006 Accepted into "America's Registry for Outstanding Professionals", (2006-2007, 11th Anniversary Edition)

2006 Recipient of Ph.D. Engineering Scholarship, Wright State University

2003 Recipient of Competitive DAGSI Scholarship, Home Institution - Wright State

2003 Recipient of Chair's Special Recognition for Contribution, Dept. of Management Science and Information Systems, Wright State University

2002 Recipient of Chair's Special Recognition for Excellence in Teaching, Dept. of Management Science and Information Systems, Wright State University

2001 Awarded Graduate Teaching Assistantship, Dept. of Management Science and Information Systems, Wright State University

1999 Awarded Graduate Trainee Position, Cochin Refineries Ltd., India, based on a national level qualifying exam

GRANTS AWARDED

Current Grants

- **NSF I-Corps grant** [PI (share: $50,000); project duration: 6 months; $50,000]
- **NSF CAREER grant** [Sole investigator; project duration: 5 years; $400,000]
- **NSF S-STEM grant:** [PI (share: $598,000); project duration: 5 years; $598,000]

Past Grants

- **NSF BRIGE grant** [Sole investigator; project duration: 3 years; $174,795]
- **US Army Research Lab grant** [Sole investigator; project duration: 1 year; $122,243]
- **NSF REU grant** [supplementary grant as part of NSF BRIGE grant; $6000]
- **Engaging Students in Engineering Minigrant** [Stevens Institute subaward to CSUF; Everyday Examples in Engineering Co-Lead; project duration: 1 year; $10,000]

EQUIPMENT DONATION

2012 **Emulex Corporation** (Costa Mesa, CA) **Donation** (equipment cost: $850,000)

2011 **Xilinx University Program Donation** (Purchase Order # 5310-XUP-1-1U9KYM; equipment cost: $4,243)

INDUSTRY FUNDED PROJECTS

2013 "Pulsed Radar Receiver Implementation on Hardware Accelerator Platforms" funded by **Mercury Defense Systems**, Cypress, CA ($10000)

2013 "Brain-Computer Interface Controlled Robotic Arm" funded by **Western Digital**, Irvine, CA ($7500)

INTRAMURAL GRANTS/AWARDS

Funding Source	Funding Year	Proposal Title	Funding Amount
OGC Junior Faculty Award	2014	Intelligent Indoor Air Quality and Ventilation System	$5,000 + 3 WTU release time
Instructionally Related Activities (IRA)	2014	Multidisciplinary Senior Design Projects in Computer Engineering	$7700
FDC (FEID Grant)	2014	Lab to Market – entrepreneurship in engineering	3 WTU release time
Instructionally Related Activities (IRA)	2013	Multidisciplinary Senior Design Projects in Computer Engineering	$7400
FDC (FEID Grant)	2013	Integrating Service-Learning into Capstone Design Project Course in Computer Engineering	3 WTU release time
CICE Mini grant	2013	Add Service-Learning to a Course	$1000
OGC Junior Faculty Award	2012	Neural Signal Based Assistive Technology for Spinal Cord Injury (SPI) Patients	$5,000 + 3 WTU release time
Instructionally Related Activities (IRA)	2012	Multidisciplinary Senior Design Projects in Computer Engineering	$7300
OGC Incentive Grant	2011	Design and Implementation of an Evolving Intelligent Telemedicine Clinical Decision Support System	$10,000
FDC (FEID Grant)	2011	Design and Implementation of low-cost SmartBoards for engineering classrooms	$55 + 3 WTU release time
FDC Faculty-Student Research Grant (Fall)	2011	Microchip Implementation of Brain-Computer Interface (BCI) for Biomedical Applications	$1000
Instructionally Related Activities (IRA)	2011	Multidisciplinary Senior Design Projects in Computer Engineering	$6,700
OGC Incentive Grant	2010	Titan Supercomputing Centre	$10,000
FDC Faculty-Student Research Grant (Spring)	2010	Design and Implementation of a Cost-Effective Solar-Powered Fully Automated Algae Fuel Production System	$1000
FDC Faculty-Student Research Grant (Fall)	2010	Fully Automated Solar-Powered Water Purification System - A Sustainable Water Solution	$995
Instructionally Related Activities (IRA)	2010	Multidisciplinary Senior Design Projects	$5,505

		in Computer Engineering	
FDC (FEID Grant)	2010	Cost-Effective Integration of Single-Tablet Model into Computer Engineering Courses	$423 + 3 WTU release time
ECS Dean's Office	2010	Cost-Effective Integration of Single-Tablet Model into Computer Engineering Courses	$7,000
Accessible Technology Initiative (ATI)	2010	Adaptation of EGCP 450 Class to Meet ATI Mandates	$1,250
ECS Dean's Office	2010	Development of High Performance Computing Lab	$63,540
OGC (Mini-Grant)	2010	Fully Automated Solar-Powered Biodiesel Processor	$3,000
CSUF Incentive Program award	2009	ECS ACE Scholarship program	$2,000
FDC (Faculty-Student Research Grant)	2009	Fully Automated Solar-Powered Biodiesel Processor	$830
FDC (Untenured Faculty Development Intramural Grant)	2009	Development of Undergraduate Course in Logic Design for Nano ICs	$1000 + 3 WTU release time
OGC (General Faculty Award)	2009	Microchip Implementation Of High Frequency Ultrasound Transducer Array With Applications In Medicine	$3,000
Vice President for Academic Affairs (Newly-Hired Probationary Faculty Stipend)	2008	High Precision DSP Algorithm Development to Extend Digital Receiver Performance	$6,500
ECS Dean's Office	2008	Development of VLSI Lab	$62,000

RESEARCH PUBLICATIONS

Journals

[1] K. George, K. and C.-I. H. Chen, "Multiple Signal Detection Digital Wideband Receiver Utilizing Hardware Accelerators*," IEEE Transactions on Aerospace and Electronic Systems*, vol.49, no.2, 706-712, April 2013.

[2] K. George, K. and C.-I. H. Chen, "Measurement setup and performance analysis of digital receiver system with multiple signal detection and expandable bandwidth capabilities on a multiprocessor hardware platform*," Int. J. Engg. Sc. & Mgmt*., vol.3, no.1, 46-54, June 2013.

[3] K. George and C.-I. H. Chen, "Biologically-Inspired Signal Processor with High

Instantaneous Dynamic Range and Frequency Resolution," *International Journal on Smart Sensing and Intelligent Systems*, vol. 4, no. 4, 547 – 567, Dec 2011.

[4] K. George and C.-I. H. Chen, "A Hybrid Computing Platform Digital Wideband Receiver Design and Performance Measurement," *IEEE Transactions on Instrumentation and measurement*, no. 99, pp. 1-3, June 2011.

[5] K. George and C.-I. H. Chen, "Logic Built-In Self-Test for Core-Based Designs on System-on-a-Chip," *IEEE Trans. Instrumentation and Measurement*, vol. 58, no.5, pp. 1495 – 1504, May 2009.

[6] K. George, C.-I. H. Chen, and J. B. Y. Tsui "Extension of Two Signal Dynamic Range of Wideband Digital Receivers using Kaiser Window and Compensation Method," *IEEE Trans. Microwave Theory and Techniques*, vol. 55, no. 4, pp. 788– 794, April, 2007.

[7] C.-I. H. Chen, K. George, W. McCormick, J. B. Y. Tsui, S. L. Hary, and K. M. Graves, "Design and performance evaluation of a 2.5-GSPS Digital Receiver", *IEEE Trans. Instrumentation and Measurement*, vol. 54, no. 4, pp. 1089-1099, June 2005.

[8] C.-I. H. Chen and K. George, "Configurable two-dimensional Linear Feedback Shifter Registers for parallel and serial Built-In Self-Test", *IEEE Trans. Instrumentation and Measurement*, vol. 53, no. 4, pp. 1005-1014, August 2004.

Conference Proceedings and Symposiums

[1] Invited Panelist; "How Research and Methodologies in Systems, Human-Machine Systems, and Cybernetics can be applied to BMI Systems," *2014 IEEE International Conference on Systems, Human-Machines Systems, and Cybernetics*, October 2014.

[2] Invited Panelist; "What Have We Learned, Where Do We Go From Here," *2014 IEEE International Conference on Systems, Human-Machines Systems, and Cybernetics*, October 2014.

[3] K. George, A. Iniguez, Y. Cheng, G. Quental, and J. Gutierrez, "Low-Cost BCI Assisted System to Improve Quality of Life for ALS Patients," BCI Exhibit - *2014 IEEE International Conference on Systems, Human-Machines Systems, and Cybernetics*, October 2014.

[4] K. George, A. Iniguez, and H. Donze, "Sensing and Decoding of Visual Stimuli using Commercial Brain Computer Interface Technology with a Cognitive Level Function," *Proceedings of the 2014 IEEE International Instrumentation and Measurement Technology Conference proceedings,* May 2014.

[5] K. George, A. Iniguez, and H. Donze, "Automated Sensing, Interpretation and Conversion of Facial and Mental Expressions into Text Acronyms using Brain-Computer Interface Technology," *Proceedings of the 2014 IEEE International Instrumentation and Measurement Technology Conference proceedings,*May 2014.

[6] K. George, A. Iniguez, and H. Donze, "Design, Implementation and Evaluation of a Brain-Computer Interface Controlled Mechanical Arm for Rehabilitation," *Proceedings of the 2014 IEEE International Instrumentation and Measurement Technology Conference proceedings,* May 2014.

[7] K. George and C.-I. H. Chen, "Modular Test RF Instrumentation and Measurement for a Hybrid Computing Digital Wideband Receiver," *Proceedings of the 2014 IEEE International Instrumentation and Measurement Technology Conference proceedings,* May 2014.

[8] K. George and V. Venugopal, "Design and performance measurement of a high-performance computing cluster," *Proceedings of the 2012 IEEE International Instrumentation and Measurement Technology Conference proceedings,* pp. 2531 - 2536, May 2012.

[9] K. George and C.-I. H. Chen, "Automated mixed-signal SoC BIST synthesis utilizing hardware accelerators," *Proceedings of the 2012 IEEE International Instrumentation and Measurement Technology Conference proceedings,* pp. 1184 - 1189, May 2012.

[10] K. George, "Evaluating the Impact of ECS Academic Catalyst for Excellence (ACE) Scholarship Program," *Proceedings of the 2013 ASEE-PSW conference,* April 2013.

[11] K. George, "CoursePedia for Engineering Courses," *Proceedings of the 2013 ASEE-PSW conference,* April 2013.

[12] K. George, "Integration of Low-cost Classroom Technologies into Engineering Classrooms," *Proceedings of the 2012 ASEE-PSW conference,* February 2012.

[13] K. George, "A STEM Scholarship Program Model to Reverse High Student Attrition," *Proceedings of the 2012 ASEE-PSW conference,* February 2012.

[14] K. George, Engineering innovation project presented at *2011 National Academy of Engineering's Frontiers of Engineering Education Symposium* for early career faculty members who are developing and implementing innovative educational approaches in engineering disciplines (one among 65 attendees chosen from across the country).

[15] K. George, "Cost-Effective Integration of Tablet Technology into Engineering Courses," *Proceedings of the 2011 ASEE-PSW conference*, April 2011.

[16] K. George and C.-I. H. Chen, "Design and Performance Evaluation of a Digital Wideband Receiver on a Hybrid Computing Platform," *Proceedings of the 2011 IEEE International Instrumentation and Measurement Technology Conf.*, pp. 1-5, May 2011.

[17] K. George and C.-I. H. Chen, "Logic Built-In Self-Test for Core-Based Designs on System-on-a-Chip," *Proceedings of the 2008 IEEE International Instrumentation and Measurement Technology Conf.*, pp. 1503-1508, May 2008.

[18] K. George and C.-I. H. Chen, "Multiple Signal Detection and Measurement Using a Configurable Wideband Digital Receiver," *Proceedings of the 2007 IEEE International Instrumentation and Measurement Technology Conf.*, May, 2007.

[19] K. George and C.-I. H. Chen, "Configurable and Expandable FFT Processor for Wideband Communications," *Proceedings of the 2007 IEEE International Instrumentation and Measurement Technology Conf.*, Warsaw, Poland, May, 2007.

[20] K. George, C.-I. H. Chen, and J. B. Y. Tsui "Extension of Two Signal Spur Free Dynamic Range of Wideband Digital Receivers using Kaiser Window and Compensation Method", *Proceedings of the 2006 IEEE MTT International Microwave Symposium*, pp. 1955-1958, June 2006.

[21] C.-I. H. Chen and K. George, "2.5 GSPS/1 GHz Wide Band Digital Receiver", *Proceedings of the 2003 IEEE Industrial Electronics*, vol. 2, pp. 1888-1893, Nov. 2003.

[22] C.-I. H. Chen, K. George, and J. B. Y. Tsui, "Design and measurement of 2.5 GSPS Digital Receiver", *Proceedings of the 2003 IEEE Instrumentation and Measurement technology Conf.*, vol. 1, pp. 258-263, May. 2003.

[23] C.-I. H. Chen and K. George, "Configurable two-dimensional Linear Feedback Shift Registers for Built-In Self-Test", *Proceedings of the 2003 IEEE Instrumentation and Measurement technology Conf.*, vol. 2, pp. 1431-1436, May. 2003.

[24] C.-I. H. Chen and K. George, "Configurable two-dimensional Linear Feedback Shift Registers for random patterns logic BIST", *Proceedings of the 2003 IEEE Int. Symp. Circuits and Systems*, vol. 5, pp. 25-28, May. 2003.

[25] C.-I. H. Chen and K. George, "Automated synthesis of Configurable two-dimensional Linear Feedback Shifter Registers for random/embedded test patterns", *Proceedings of the 2003 IEEE Int. Symp. Quality Electronic Design*, vol. 5, pp. 24-26, March. 2003.

COMPUTER ENGINEERING PROGRAM RELATED SERVICE AND ACTIVITIES

- ABET Coordinator for Computer Engineering (2014-14 Review Cycle)
- Proposed *4 year Integrated BS/MS Degree* program in Computer Engineering (Approved in Spring 2013; First cohort: Fall 2014)
- Proposed MS Degree in Computer Engineering (Approved in Spring 2013; First batch: Fall 2013)
- Proposed seven new courses and revised existing courses
- Proposed and setup Very-large-scale integration (VLSI) lab
- Proposed and setup High-Performance Computing (HPC) lab
- Serving as capstone senior design project advisor
- Serving as undergraduate and graduate advisor
- Supervised over 100 undergraduates and graduates on various student projects including 16 students from local community colleges
- Serving as NSO and TSO advisor
- Coordinated several outreach and synergic activities
- Faculty Advisor, IEEE Computer Society Student Chapter (2007 - 2012)
- Member, CpE Advisory Board (2007 - present)
- Member, CpE Scholarship Committee (2007 & 2010)
- Member, CpE Faculty Search Committee (2009, 2011, 2012 & 2013)
- Member, CpE Planning Committee (2012 & 2013))

SERVICE TO THE COLLEGE OF ECS

- Assistant Marshall – ECS Commencement (2008 - 2013)
- ECS Open House, (2008 - 2013)

- Welcome to CSUF Day (2008 - 2013)
- Host Professor, Professor for a Day Event (2008 - 2013)
- Member, ECS Curriculum Committee (2008 & 2009)
- Member, ECS Scholarship Committee (2009)

UNIVERSITY SERVICE

- Steering Committee Member, Strategic Planning (co-chair: Goal 4)
- Taskforce Member, Strategic Plan Goal 1 – Assessment)
- Taskforce Member (Strategic Plan Goal 2 – High Impact Practices)
- Member, Assessment and Educational Effectiveness Committee (2013 & 2014)
- Member, Internships and Service-Learning Committee Meeting (2013 & 2014)
- Member, 50th Anniversary Research Celebration Planning Committee (2007)
- Member, OGC Advisory Committee (2010 – present)
- FDC Board – ECS representative (2011)
- OGC Asst. Director Search Committee (2012 & 2013)

PROFESSIONAL SERVICES/ACTIVITIES

- **Member** of IEEE, ASEE, International Microwave & Instrumentation and Measurement society
- **Reviewer** NSF, FDC (CSUF), IEEE International Symposium on Circuits and Systems, IEEE International Conference on Electronics, Circuits and Systems, IEEE Transactions on Computers, IEEE Transactions on Signal Processing, IEEE Transactions on Instrumentation and Measurement, and IEEE Transactions on Circuits and Systems (I) & (II)

MEDIA ARTICLES

Robotic Arm Could Give a Helping Hand to ALS Sufferers [The Accelerator - ASEE]
http://blog.engineeringstudents.org/?p=3740

Students continue work on prototype robotic arm Mind Games
http://www.dailytitan.com/2014/03/students-continue-work-on-prototype-robotic-arm/

Computer science majors build robotic arm after months of planning
http://www.dailytitan.com/2014/03/computer-science-majors-build-robotic-arm-after-months-of-planning/

Students Develop Mind-Controlled Robotic Arm
http://news.fullerton.edu/2013fa/robotic-arm.asp

'High-impact' learning at CSUF
http://www.ocregister.com/articles/students-602700-impact-high.html?page=1

Unique Dual Degree Program Approved
http://www.fullerton.edu/ecs/newsletter/Newsletter_ECS_Spring_2013.pdf

New M.S. in Computer Engineering Offered in Fall
http://news.fullerton.edu/2013su/new-engineering-degree.asp

The High Impact of Experiential Learning
http://news.fullerton.edu/2013su/High-Impact-Learning.asp

Learning to Design High-Speed Circuits
http://calstate.fullerton.edu/news/2012su/Emulex-Donation.asp

Recognizing Promise; Kiran George Receives 'Early CAREER' Award
http://calstate.fullerton.edu/news/2012sp/Kiran-George-NSF-Award.asp

Outstanding Professors: 2011 -12
http://news.fullerton.edu/2012fa/year-in-review.asp

High-Tech and High-Impact
http://calstate.fullerton.edu/inside/2011fall/High-Tech-Research-Experience.asp

Retaining Engineering Students - Grant Funds Scholarships and Extra Support
http://calstate.fullerton.edu/news/Inside/2010/grant-supports-engineering-students.html