E-mail: tkelarabi@gmail.com Dr. Tarek Elarabi
Phone: +1(337) 326-1434

Objective

I have a multifaceted academic career with 8+ years of teaching graduate and undergraduate students and 7+years track record of research and development in Image and Video Processing. I am expert in designing, optimizing, testing, validating, and prototyping Video Codec systems with emphasize on the H.264/AVC and H.265/HEVC standard. I am looking for a challenging position that utilizes my knowledge, helps me to grow my teaching skills and research experiences

Education & Professional Training

- PhD in Computer Engineering. (GPA: 4.0/4.0) (Dec 2012)
  The Center for Advanced Computer Studies (CACS), Lafayette, LA USA.
  University of Louisiana at Lafayette (ULL).
  Dissertation Title: "Real-Time Heterogeneous Video Transcoding for Mobile Applications".
- Master of Science in Computer Engineering. (GPA: 4.0/4.0) (May 2010)
  The Center for Advanced Computer Studies (CACS), Lafayette, LA USA.
  University of Louisiana at Lafayette (ULL).
- Bachelor of Science in Electrical and Computer Engineering. (GPA: 4.0/4.0) (Dec 2008)
  Arab Academy for Science, Technology and Maritime Transport (AAST).
  College Of Engineering and Technology, Alexandria, ARE.
- Technology Certification:
  - Cisco CCNA Certified. (CSCO11790900)
    Switches & Routers, VoIP and Video
  - Microsoft Certified IT Professional (MCITP)
    - Microsoft IT Professional:
      - Developer for Microsoft Dynamics NAV2009. [D677-6241]
      - Installation & Configuration for Microsoft Dynamics NAV2009. [D634-5147]

Work Experiences

- California State University-Fresno August 2014 – Present
  Assistant Professor at Electrical and Computer Department [tenure-track]
- Intel Mask Operation Data Center Infrastructure Senior Engineer July 2013 – July 2015
  Intel Corporation
  Intel Mask Operation (IMO –SC2) Santa Clara, CA USA
- Associate Faculty December 2013 – Present
  West Valley Mission Collage, Santa Clara, CA
- Research Associate December 2012 – Present
  The Center for Advanced Computer Studies (CACS)
- University of Louisiana at Lafayette (ULL), Lafayette LA
- IT Professional/ ERP Technical Instructor & Consultant September 2011 – August 2014
  ALLCOM, Inc
- Lecturer/ Academic Graduate Advisor August 2009 – December 2012
  The Center for Advanced Computer Studies (CACS)
  University of Louisiana at Lafayette (ULL); Lafayette LA USA
- RF Design Engineer (Intern) May 2011 – August 2011
  Forward Link, A Division of CBM of America, Inc
- Graduate Teacher Assistant (GTA) February 2008 - May2009 College
  of Computer Science, Academy for Science &Technology; AAST

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Teaching Experience:

- Graduate Courses Taught
  - High Performance Computer Architecture [ECE274]
  - Advanced Computer Networking [ECE246] (New Course I developed and taught Spring 2015)
  - Advanced Computer Architecture [ECE174G]
- Undergraduate Courses Taught
  - Digital Logic Design [ECE85]
  - Digital Logic Design Laboratory [ECE85L]
  - Switching Theory and Logical Design [ECE106]
  - Computer Organization [ECE115]
  - Microprocessor Arch and Programming [ECE 118]
  - Microcontroller Laboratory [ECE 120L]
  - Advanced Computer Architecture [ECE174]
  - Mobile Applications - Lab [ECE122L] (New Course I developed and taught Fall 2015)
  - Engineering Computations Using C [ECE70]
  - Mobile Apps Programming - iPhone [CIS060-Online] (New Course I developed and taught since Fall 2014)
  - Linux Essentials I [CIS045]

Selective Publications

Journals:

- T. Elarabi, Randa Ayoubi, Hanan Mahmud and M. Bayoumi,
  "Efficient 45nm ASIC Architecture for Full-Search Free Intra Prediction for Real-Time H.264/AVC Decoder",
  Springer Journal, SI: SiPS2012.
- J. McNeely, Y. Ismail, T. Elarabi and M. Bayoumi,
  " 'Voodoo' Error Prediction System for Scalable Video Coding ",
  Hindawi Publishing Corporation, 2011.

Conferences:

- Tarek Elarabi,
  "*Effectiveness of the Hybrid F2F/Online Model for Junior and Senior Engineering Co*urses", 2016 American Society for Engineering Education Pacific Southwest Conference ASEE-PSW
- Tarek Elarabi, Vishal Deep, Chashamdeep Rai
  "Optimal Hardware Design of State-of-Art ZigBee Transmitter for IoT Wireless Devices ",
  IEEE International Symposium on Signal Processing and Information Technology, ISSPIT- 2015
- Tarek Elarabi, Abhijit Suprem
  "Orientation and Displacement Detection for Smartphone-Device Based Inertial Measurement Units ",
  IEEE International Symposium on Signal Processing and Information Technology, ISSPIT- 2015
- T. Elarabi, A. Sammoud and M. Bayoumi
  "Hybrid Wavelet/ DCT INTRA prediction For H.264/AVC Codec", IEEE ChinaSIP - July 2014, Xi'an China.
- T. Elarabi and M. Bayoumi
  "Full-Search Free Intra Prediction Algorithm for Real-Time H.264/AVC Decoder",
  Signal Processing, Image Processing and Pattern Recognition, SIP2012 Jeju, Korea.
- T. Elarabi, R. Ayoubi, H. Mahmud and M. Bayoumi,
  "Hardware Architecture For Fast Intra Mode and Direction Prediction in Real-Time MPEG-2 to H.264/AVC Transcoder",
  IEEE WoWMoM 2012 /VidEv, San Francesco CA [Acceptance Rate %18].
- T. Elarabi, H. Mahmoud, M. Bayoumi,
  "High Speed Intra Mode And Direction Prediction for MPEG-2 TO H.264/AVC Real-Time Transcoder",
  IEEE Workshop on Signal Processing Systems, SiPS 2011, Beirut Lebanon.

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Books:

- T. Elarabi, A. Abdelgawad and M. Bayoumi,
  "High-Throughput MPEG-2 to H.264/AVC Transcoding for Real-Time Video Applications". (Springer) Spring 2014
- T. Elarabi and M. Bayoumi,
  "Real-Time Heterogeneous Video Transcoding for Mobile Applications". (Ph.D. Dissertation)
- T. Elarabi and S. Youssef,
  "Wavelet Transformation for Image Compression and Information Hiding". (S. G. Thesis)

Research Interests

- Video Processing: Heterogeneous Video Transcoding, H.264/AVC, HEVC, Scalable Video for IoT applications.
- Image Processing: Image Compression & Image Retrieval.
- Computer Architecture: FPGA for IoT devices, VLSI Low Power Design & ASIC Implementations.
- Networking: Cross-layer Designs, Congestion Control, Resource Management, Fog Computing & IoT applications.
- Organic Computing: Biological Inspired Systems for Circuit Level Designs.
- Data Storage and Data replication technologies: Asynchronous secured data replication.

Selective projects

- PoC for Cloud Kiosk Project with California Development & Product Licensing (Fall 2015)
- FPGA based Quad-copter (CSU-Fresno) (Spring 2015)
- MySQL Hi-Availability cluster (Intel) (Spring 2014)
- WAN Latency Linux Based Simulator (Intel) (Fall 2013)
- EMC^2 Data Replication Solution for Data Center (Intel) (Fall 2013)
- PBX in a Flash/ FreePBX VoIP Phone System For Allcom, Inc (Spring/ Fall 2013)
- Microsoft ERP NAV 2009 Deployment for Oil Center Research International, Inc (Fall 2012)
- Design and Develop iPhone App for Oil Center Research International, Inc (Spring 2012)
- 45 nm ASIC implementation for a Full-Search Free Intra Prediction for H264/AVC Decoder
  (Simulated using C++ and HW implemented using VHDL and synthesizing Cadence tools). (Spring 2012)
- RF Reader Application for Android mobile devices for on site RF signal strength recording. (Summer 2011)
- Wear Leveling Controller for flash memory array to overcome the flash endurance problem.
  (Simulated using C++ and HW implemented using Verilog and synthesizing Cadence tools). (Spring 2011)
- MPEG-2 to H.264/AVC Transcoder for real-time applications.
  (Simulated using C++ and HW implemented using VHDL and synthesizing Cadence tools). (2011/ 2012)
- Multiphase Digital Ultra-wide-band Transmitter optimized for energy-efficiency.
  (HW implementation using VHDL,Verilog and synthesizing Cadence tools). (Full 2010)
- Client Based Price Monitoring System. (Implemented using JAVA and HTML). (Spring 2010)

Professional Development, Organization & Awards

- Academic Senator of the ECE department at CSU- Fresno senate
- CSU- Fresno DISCOVERe Faculty Fellow
- CSU- Fresno eScholars Faculty Fellow
- ASEE Faculty Active Member
- IEEE Faculty Active Member
- Member and Web Master for IEEE Computer Society Chapter at ULL
- Member of the honor society PHI KAPPA PHI
- Member of the technical program committee TPC of MIC-SigProc International Conference
- Organizing Member and Web Master in the UCSWSN Conference
- Organizing Member and Web Master in the IEEE SiPS Conference
- Awarded Certificate of Achievement for Academic Excellent by UL Lafayette, May 2012
- Recognized as Honor Student [2010, 2011 and 2012] by the University of Louisiana at Lafayette
- Awarded the University of Louisiana at Lafayette Assistantship [2009 – 2012]
- Awarded the Academy for Science &Technology Substantial Student Scholarship [2004 – 2008]
- Awarded The Academy for Science &Technology Distinguished Students' Award [2004 -2008]