Gustavo Ramon Chau Loo Kung

gustavo.chau@pucp.edu.pe • website: www.gchau.com

EDUCATION

Pontificia Universidad Catolica del Peru, Lima, Peru

- M.Sc. in Digital Signal and Image Processing — Mar 2015 – Dec 2016
  - **Thesis:** Robust Minimum Variance Beamformer using Locally Adaptive Phase Aberration Correction
  - **Advisers:** Roberto Lavarello (Pontificia Universidad Catolica del Peru) and Jeremy Dahl (Stanford University)
  - Graduated as top student in the program.
  - **GPA:** 19.20 / 20.00

Universidad de San Martin de Porres, Chiclayo, Peru

- B.Sc. in Electronic Engineering — Mar 2008 – Dec 2012
  - **Thesis:** Subvocal Speech Recognition System based on the Identification and Segmentation of Syllables from the Integral of Absolute Value and Cumulative Residual Entropy
  - **Adviser:** Guillermo Kemper
  - Graduated as top student in the Engineering School.
  - **GPA:** 17.80 / 20.00

RESEARCH EXPERIENCE

Digital Signal Processing Laboratory, Pontificia Universidad Catolica del Peru

- Research Assistant — Feb 2017 – Now
  - Supervisor: Paul Rodriguez
  - Research areas: Image processing, optimization, inverse problems, sparse representations

Medical Imaging Laboratory, Pontificia Universidad Catolica del Peru

- Research Assistant — Mar 2015 – Dec 2016
  - Supervisor: Roberto Lavarello
  - Research areas: Ultrasound imaging, image and signal processing.

Ultrasound Laboratory, Stanford University

- Visiting Student Researcher — Jan 2016 – Apr 2016
  - Supervisor: Jeremy Dahl
  - Research areas: Ultrasound imaging, Image and signal processing, GPU programming.

Electronic Engineering Department, Universidad de San Martin de Porres

- Undergraduate Research Student — 2010 – 2012
  - Projects: Control System for a Medical Waste Pyrolytic Incinerator, Quality Control System for Pigeon Pea Selection based on Digital Image Processing, and Implementation of a Broadcast Automatic System for the Terminal of Chiclayo.
  - Supervisor: Oscar Romero
  - Research areas: Image processing, signal processing, control systems.

PUBLICATIONS **JOURNALS**

- G. Chau, M. Jakovljevic, R. Lavarello, and J. Dahl, "A Locally Adaptive Phase Aberration Correction (LAPAC) Method for Synthetic Aperture Sequences," *Ultrasonic Imaging*, 2018, 0161734618796556.
- M. Jakovljevic, S. Hsieh, R. Ali, G. Chau, D. Hyun, and J. Dahl, "Local Speed of Sound Estimation in Tissue using Pulse-echo Ultrasound: Model-based Approach," *The Journal of the Acoustical Society of America*, 2018. 144.1 (2018): 254-266.
- G. Chau, J. Dahl and R. Lavarello, "Effects of phase aberration and phase aberration correction on the minimum variance beamformer," *Ultrasonic imaging*, vol. 40, no. 1, pp. 15–34, 2017.
- G.Torres, G. Chau , K. Parker, B. Castañeda and R. Lavarello, "Temporal artifact minimization in sonoelastographic imaging through optimal selection of imaging parameters," *The Journal of the Acoustical Society of America*, no. 140, pp. 714–717, Jul 2016.
- G. Chau and G. Kemper, "One Channel Subvocal Speech Phrases Recognition Using Cumulative Residual Entropy and Support Vector Machines," *IEEE Latin America Transactions*, vol. 13, no. 7, pp. 2135–2143, Jul 2015.

CONFERENCES

- G. Chau, B.Wohlberg and P. Rodriguez, "Efficient projection onto the $\ell_{\infty,1}$ ball using Newton's root-finding method," *2018 SIAM Conference on Imaging Science*, Bologna, Italy, 2018 (Accepted).
- G. Chau, B.Wohlberg and P. Rodriguez, "Fast Projection onto the $\ell_{\infty,1}$ Mixed Norm Ball using Steffensen Root Search," *2018 International Conference on Acoustics, Speech and Signal Processing*, Calgary, Canada, 2018 (Accepted).
- G. Chau *et al.*, "B-line Detection using Amplitude Modulation-Frequency Modulation (AM-FM) Features," *Proc. SPIE 10580, Medical Imaging 2018: Ultrasonic Imaging and Tomography, 105800B*, Houston,TX, USA, 2018.
- G. Chau, "Inter-patient seizure classification using 1-D convolutional neural networks," *Society for Neuroscience 2017*, Washington, USA, November 2017, 532.25.
- G. Chau and P. Rodriguez, "Panning and Jitter Invariant Incremental Principal Component Pursuit for Video Background Modeling," *In Proceedings of the 2017 IEEE International Conference on Computer Vision (ICCV)*, Venice, Italy, pp. 1844–1852 2017
- G. Chau, M. Jakovljevic, R. Lavarello, and J. Dahl, "Robust Minimum Variance Beamformer using Locally Adaptive Phase Aberration Correction," *2016 IEEE International Ultrasonics Symposium (IUS)*, Tours, France, pp. 1–4. 2016
- G. Chau, J. Dahl, and R. Lavarello, "Short-Lag Spatial Coherence Weighted Minimum Variance Beamformer for Plane-wave Images," *2016 IEEE International Ultrasonics Symposium (IUS)*, Tours, France, pp. 1–3. 2016
- G. Chau, J. Dahl, and R. Lavarello, "Effects of phase aberration correction methods on the minimum variance beamformer," *Engineering in Medicine and Biology Society (EMBC), 2016 38th Annual International Conference of the IEEE*, Orlando,FL,USA pp. 3231–3234 Aug 2016.
- M. Jakovljevic, K. Looby, G. Chau, S. Hsieh and J. Dahl, "Iterative Correction Method for a Distribute Aberrator using Synthetic Transmit Aperture," *Ultrasonic Imaging and Tissue Characterization Symposium*, 2016 (Abstract).

- G. Chau and G. Kemper, "Design and Implementation of a Wheelchair Control System activated by Subvocal Speech Commands," *XX International Congress on Electrical Engineering, Electronic Engineering, Computer Science and related branches – INTERCON*, Trujillo, Peru Jul 2013.

ACADEMIC AWARDS

- Trainee Professional Development Award, Society for Neuroscience 2017
- Marco Polo Fund, Pontificia Universidad Catolica del Peru 2016
  Funding for international research internships given to outstanding students in the Graduate School.
- Aristoteles Fellowship, Pontificia Universidad Catolica del Peru 2016
  Full tuition scholarship for the 2016-I and 2016-II semesters for being one of the top students in the Graduate School
- Internal Fellowship, Universidad de San Martin de Porres 2008-2012
  Full-tuition scholarship for being the top student in the Engineering program.

TEACHING EXPERIENCE

- Teaching assistant, Human Physiology for Engineers 2017
- Teaching assistant, Digital Signal and Image Processing 2017
- Teaching assistant, Digital Design 2017

REVIEWER

- 2017 International Workshop on Robust Subspace Learning and Applications in Computer Vision
- EMBC 2016 student paper competition
- IEEE Transactions on Medical Imaging
- IEEE Transactions on Image Processing

ADDITIONAL COURSES

- Peruvian-German Winter School on finite element methods (2015)
- Oracle 11g Administration Workshops I and II (2013)
- Extension course on telecommunication services regulation (2013)
- Cisco Certified Network Associate (2012)

ONLINE COURSES

Computer Science and Engineering

- Machine Learning – Stanford University (through Coursera)
- Convex Optimization – Stanford Online
- Statistical Analysis of fMRI Data – Johns Hopkins University (through Coursera)
- Linear and Integer Programming – University of Colorado Boulder (through Coursera)
- Control of Mobile Robots – Georgia Institute of Technology (through Coursera)
- Introduction to Dynamical Systems and Chaos – Santa Fe Institute

Neuroscience

- Neuronal Dynamics – École Polytechnique Fédérale de Lausanne (through edX)
- Visual Perception and the Brain – Duke University (through Coursera)
- The Brain and Space – Duke University (through Coursera)
- Computational Neuroscience – University of Washington (through Coursera)
- Synapses, Neurons and Brains – The Hebrew University of Jerusalem (through Coursera)

Other Biomedical Sciences

- Bioelectricity : A Quantitative Approach – Duke University (through Coursera)
- Dynamical Modeling Methods for Systems Biology - Icahn School of Medicine at Mount Sinai (through Coursera)
- Introduction to Genetics and Evolution – Duke University (through Coursera)
- Introductory Human Physiology – Duke University (through Coursera)
- Introduction to Systems Biology - Icahn School of Medicine at Mount Sinai (through Coursera)
- Computational Molecular Evolution – Technical University of Denmark (through Coursera)
- Introduction to Biology – MIT (through edX)
- Statistics in Medicine – Stanford Online

OTHER WORK EXPERIENCE

Medical Imaging Laboratory, Pontificia Universidad Catolica del Peru, Lima, Peru

- Laboratory manager. 2015

Universidad de San Martin de Porres, Chiclayo, Peru

- Programmer Analyst for web developing. 2014

Kalen Peru, Lambayeque, Peru

- Statistical Analyst for the supervision of an optic fiber network installation. 2013

SKILLS

Linux (Intermediate), MATLAB (Intermediate), Python (Basic), CUDA (Basic), C++ (Basic), C (Intermediate) , Java (Intermediate), Javascript (Basic), LaTeX (Intermediate).

LANGUAGES

- Spanish: Native language.
- English: Advanced (reading,speaking, writing).
- French: Intermediate (reading, speaking, writing).