Curriculum Vitae

Vai Mang I, 韋孟宇

Ph.D., Associate Professor,

Dept. of Electrical and Computer Engineering (ECE)

Faculty of Science and Technology (FST)

University of Macau

Avenida da Universidade, Taipa, Macau, China

Office: E11-3035 Tel: +853 88224461 e-mail: fstmiv@umac.mo

http://www.fst.umac.mo/en/staff/fstmiv.html

- **Post Secondary Education:**

PhD July 2002	Dept. of Electrical and Electronics Engineering, Faculty of Science and Technology, University of Macau, Macau, China Research: Ventricular Late Potentials Variance Detection
Master of Science July 1989	Dept. of Electronics Engineering, Jinan University, Guangzhou, China Thesis: Experimental System of Artificial Cochlea
Bachelor of Science July 1984	Physics Dept., Hua Qiao University, Quanzhou, China Final Project: Microprocessor Based Tobacco Moisture Tester

- **Professional Experience:**

Associate Professor (Sep 2011 — now)	**Department of Electrical & Computer Engineering,** Faculty of Science and Technology, University of Macau, Macau S.A.R.
Dep. Head (Sep 2011 — Aug 2012)	
Coordinator (Nov 2010 — now)	**Biomedical IC Research Line, State Key Laboratory of Analog and Mixed-Signal VLSI (AMSV),** University of Macau, Macau S.A.R.
Adjunct Professor (Jan 2007 — now)	**Fujian Key Lab of Medical Instrument and Pharmaceutical Technology,** Fuzhou University, Fuzhou, Fujian, China
Associate Professor (Sep 2008 — Aug 2011)	**Department of Electrical & Electronics Engineering,** Faculty of Science and Technology, University of Macau, Macau S.A.R.
Assistant Professor (Sep 2002 — Aug 2008)	
Dep. Head (Sep 2002 — Aug 2011)	
Lecturer (Sep 1990 — Aug 2002)	**Faculty of Science and Technology**, University of Macau
Trainee Engineer (Sep 1989 — Sep 1990)	**Macau Telecommunication Company (CTM)** Setup and installed the first Public Packet Switching Network in Macau (MacauPac)
Technician (Jul 1989 — Sep 1989)	**Gallant Computer Company Ltd., Macau** Computer system installation and maintenance
Graduate Assistant (Sep 1986 — Sep 1989)	**Dept. of Electronics Engineering**, Jinan University (**暨南大學電子工程系**), Guangzhou Supervised final year project "Computer Aided Digital Circuit Faulty Allocation" and taught course "Microprocessor Interfacing"
Research Assistant (Aug 1984 — Aug 1986)	**Inst. Of Information Science**, Northern (Beijing) Jiaotong Univ. (**北方(北京)交通大學信息科學研究所**), Beijing Research group: The Modern Digital Signal Processing Software Package — a key Project of the 6th national five-year plan in China.

- **Courses Taught Last 3 Years:**
  - Undergraduate Level
    1. ECEB110 Digital Systems
    2. ECEB121 Embedded Systems
    3. CHEM111 Chemistry and Modern Society (General Education Couse)
  - Master Level
    1. ELCE701 Introduction to Research
    2. ELCE721 Embedded System
    3. ELCE725 Special Topics in Biomedical Engineering
  - PhD Level
    1. ELCE818 Advanced Topics in Electrical and Computer Engineering
    2. SCTE803 Research Methods and Ethics

- **Record of Supervision:**
  - Ph.D Degree Supervision:
    1. 5 complete (2 as supervisor, 4 as co-supervisor)
    2. 10 ongoing
  - Master's Degree Supervision
    1. >30 complete
    2. 5 ongoing
  - Bachelor's Degree Supervision
    1. >100 complete

- **Part of Researches (in recent 2 years):**
  1. ***Miniaturized and automatic controlled circuitry for rapid early detection system for AMI using fluorescence immuochromatography assay technique (MOST-FDCT Joint Project, 2013 – now)***
  2. ***Clinical Decision Support System to Analyze Biological Sequence of Heart Auscultation Signal using Automatic Transcription and Information Theory, (FDCT Project, 2012 – now)***
  3. ***High-speed computing platform for high-resolution ultrasound imaging algorithms: real-time hare wired implementation (MYRG Project, 2013 – 2016)***
  4. ***Scalable Microprocessor Supporting Multi-tasking for Biomedical Applications (MYRG Project, 2015 – now)***

- **Committee works (past 2 years)**
  - The IEEE Industrial Electronics Society (IES) Technical Committee on Cloud

and Wireless Systems for Industrial Applications, member

- Optoelectronics Global Conference (OGC) 2015, General Chair
- IEEE TENCON 2015, Track Chair
- TPC of the 22nd Information Theory Annual Conference, member

- **Community-related service, professional service, others (last 2 years)**
  - Board Member, the Chinese Society of Biomedical Engineering
    中國生物醫學工程學會理事
  - President, Macau Society of Biomedical Engineering
    澳門生物醫學工程學會會長
  - Board Member, IEEE EMBS Hong Kong – Macau Joint Chapter
  - Board Member, Biomedical Electronics Society, the Chinese Institute of Electronics
    中國電子學會生物醫學電子學分會委員
  - Board Member, Information Theory Society, the Chinese Institute of Electronics
    中國電子學會信息論分會委員
  - Board Member, Medical Neural Engineering Section, the Chinese Society of Biomedical Engineering
    中國生物醫學工程學會醫學神經工程分會委員
  - Board Vice-Director, Macau Education Foundation of the Huaqiao University
    華僑大學澳門教育基金會副理事長
  - Honorary Advisor, Institute of Electrical and Electronics Engineer of Macau
    澳門電機及電子工程師學會名譽顧問
  - Honorary Advisor, Lap Ian Sport Club of Macau
    澳門立仁體育會名譽顧問

Selected Journal Publication List (recent years)

1. Xianzeng Zhang; Nenrong Liu; Peng Un Mak; Sio Hang Pun; Mang I. Vai; Omid Masihzadeh; Malik Y. Kahook; Tim C. Lei; David A. Ammar, "Three-Dimensional Segmentation and Quantitative Measurement of the Aqueous Outflow System of Intact Mouse Eyes Based on Spectral Two-Photon Microscopy Techniques," Investigative Ophthalmology & Visual Science, Vol.57, no.7, pp. 3159-3167, June 2016
2. YM Gao, YT Ye, MI Vai, M Du, SH Pun, "Channel modeling and power consumption analysis for galvanic coupling intra-body communication", EURASIP Journal on Wireless Communications and Networking 2016 (1), 1-10
3. Y Yu, S Pun, PU Mak, CH Cheng, J Wang, PI Mak, MI Vai, "Design of a Collapse-Mode CMUT with an Embossed Membrane for Improving Output Pressure", IEEE Transaction on Ultrasonics, Ferroelectrics and Frequency Control, 2016
4. F. Wan, J. N. da Cruz, W. Nan, C. M. Wong, M. I. Vai, and A. Rosa, "Alpha neurofeedback training improves SSVEP-based BCI performance," Journal of neural engineering, vol. 13, no. 3, pp. 036019, 2016
5. X. M. Chen, S. H. Pun, J. F. Zhao, P. U. Mak, B. D. Liang, and M. I. Vai, "Effects of human limb gestures on galvanic coupling intra-body communication for advanced healthcare system," BioMedical Engineering OnLine, vol. 15, no. 1, pp. 1, 2016
6. YM Gao, ZM Wu, SH Pun, PU Mak, MI Vai, M Du, "A Novel Field-Circuit FEM Modeling and Channel Gain Estimation for Galvanic Coupling Real IBC Measurements", Sensors 16 (4), 471, 2016
7. MZ Li, CI Ieong, MK Law, PI Mak, MI Vai, SH Pun, RP Martins, "Energy Optimized Subthreshold VLSI Logic Family With Unbalanced Pull-Up/Down Network and Inverse Narrow-Width Techniques", Very Large Scale Integration (VLSI) Systems, IEEE Transactions on, 23(12), 3119-3123, 2015
8. B Jin, MI Vai, "An Adaptive Ultrasonic Backscattered Signal Processing Technique for Accurate Object Localization Based on the Instantaneous Energy Density Level", Journal of Medical Imaging and Health Informatics 5 (5), 1059-1064, 2015
9. YY Yu, XW Cao, SH Pun, PU Mak, MI Vai, "Output pressure enhancement of CMUTs by using multiple Helmholtz resonance apertures", Electronics Letters 51 (18), 1390-1392, 2015
10. Lei, T., Liu, N., Mak, P. U., Pun, S. H., Vai, M. I., Masihzadeh, et al., "Mapping the aqueous outflow system of an intact mouse eye using multiphoton spectral imaging", Investigative Ophthalmology & Visual Science, 56(7), 3258-3258, 2015

11. C Dong, T Chen, J Gao, Y Jia, PI Mak, MI Vai, RP Martins, “On the droplet velocity and electrode lifetime of digital microfluidics: voltage actuation techniques and comparison”, Microfluidics and Nanofluidics 18 (4), 673-683, 2015
12. 南文雅， 曲晓婷， 万峰， 韦孟宇， 胡勇,“基于 Nintendo Wii Balance Board 的平衡测量及神经反馈训练提高健康人平衡能力的初步研究”, 纳米技术与精密工程 13 (5), 391-395, 2015
13. W Nan, F Wan, MI Vai, AC Da Rosa, “Resting and initial beta amplitudes predict learning ability in beta/theta ratio neurofeedback training in healthy young adults”, Frontiers in human neuroscience 9, 2015
14. 高跃明， 李天麒， 林传阳， 潘少恒， 韦孟宇， 杜民,“荧光免疫层析试条光电信号处理及特征量选取”, 电子测量与仪器学报 29 (5), 662-668, 2015
15. J Gao, T Chen, C Dong, Y Jia, PI Mak, MI Vai, RP Martins, “Adhesion promoter for a multi-dielectric-layer on a digital microfluidic chip”, RSC Advances 5 (60), 48626-48630, 2015
16. DF Wong, LS Chao, X Zeng, MI Vai, HL Lam, “Time series for blind biosignal classification model”, Computers in biology and medicine 54, 32-36, 2014
17. CH Chen, SH Pun, PU Mak, MI Vai, A Klug, TC Lei, “Circuit Models and Experimental Noise Measurements of Micropipette Amplifiers for Extracellular Neural Recordings from Live Animals”, BioMed research international 2014
18. F Wan, W Nan, MI Vai, A Rosa, “Resting alpha activity predicts learning ability in alpha neurofeedback”, Frontiers in human neuroscience 8, 500, 2014
19. T Chen, C Dong, J Gao, Y Jia, PI Mak, MI Vai, RP Martins, “Natural discharge after pulse and cooperative electrodes to enhance droplet velocity in digital microfluidics”, AIP Advances 4 (4), 047129, 2014
20. S Zhang, Y Qin, J Kuang, PU Mak, SH Pun, MI Vai, Y Liu, “Development and prospect of implantable intra-body communication technology”, Journal of Computers 9 (2), 463-474, 2014
21. B Jin, MI Vai, “An adaptive ultrasonic backscattered signal processing technique for instantaneous characteristic frequency detection”, Bio-medical materials and engineering 24 (6), 2761-2770, 2014