

Academic Staff Resume

Yi Xu

Assistant Professor

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Academic Qualification:

Ph.D. in Electrical and Computer Engineering, University of Pittsburgh, USA

Master in Microelectronics, Nanjing University, Nanjing, China

Bachelor in Physics, Nanjing University, China

Teaching Area

Introduction to Remote Sensing

Research Area

Analogy study of Qaidam Basin and Mars, Microwave/Lunar radar sounder signal analysis for “Chang-E” series satellites, Computer Architecture, Interconnection architecture design for 2D/ 3D CMP, nanophotonic network, cache coherence protocol, thermal management technique

Working Experience

2013.7 ~ Present Assistant Professor

Space Science Institute, Macau University of Science and Technology, Macau

2012.4 ~ 2013.7 Senior Researcher

AMD (Advanced Micro Devices Inc.) research, Beijing, China

2007.8 - 2012.3 Graduate Teaching/Research Assistant

Department of Electrical and Computer Engineering, University of Pittsburgh

Research Projects

1. Comparative study of basin evolution of paleo-basins in Terra Sirenum on Mars and the Qaidam Basin: Implications for astrobiology study, March 2018 - March 2021, 2,040,500 MOP
2. Analog study of typical geomorphology of Qaidam basin and Mars, April 2015 - April 2018, 2,950,000 MOP
3. Comparative Study of the Polygonal Surface Structures in the Qaidam Basin and Mars, Jan.2017-Dec.2018, 90,000 RMB

Professional Certification and Awards

Outstanding Research Assistant Award, University of Pittsburgh, 2012

Best Paper Nominee, The 15th International Symposium on High-Performance Computer Architecture, 2009

Professional Society Membership

IEEE/ACM member

Guest Editor of Design & Test of Computers, Special issue on Nanophotonic Network 2013-201

Academic Publication (Since 2009)

- [1].Lai, J., Xu, Y.*, Bugiolacchi, R. et al. "First look by the Yutu-2 rover at the deep subsurface structure at the lunar farside", *Nature Communications* 11, 3426 (2020).
<https://doi.org/10.1038/s41467-020-17262-w>
- [2].Ling Zhang, Jing Li, Zhaofa Zeng, Yi Xu, Cai Liu, Shengbo Chen, "Stratigraphy of the Von Kármán Crater based on Chang'E-4 Lunar Penetrating Radar Data," *Geophysical Research Letters*,
- [3].Xu Meng, Yi Xu*, Long Xiao, Zhiyong Xiao, "Permittivity Estimation of Subsurface Deposits in the Elysium–Utopia Region on Mars with MRO Shallow Radar Sounder Data," *The Astronomical Journal*,
- [4].Xu Meng, Yi Xu*, Long Xiao, Yanan Dang, et al., "Ground-penetrating radar measurements of subsurface structures of lacustrine sediments in the Qaidam Basin (NW China): Possible implications for future in-situ radar experiments on Mars", *Icarus*, Volume 338, 113576, 1 March 2020
- [5].L Zhang, B Hu, Z Jia, Y Xu, "The Subsurface Structure on the CE-3 Landing Site: LPR CH-1 Data Processing by Shearlet Transform", *Pure and Applied Geophysics*, pp.1-16, Jan. 2020.
- [6].Jialong Lai, Yi Xu*, Xiaoping Zhang, Long Xiao, et al., "Comparison of dielectric properties and structure of lunar regolith at Chang'e-3 and Chang'e-4 landing sites revealed by ground-penetrating radar", *Geophysical Research Letters*, 46 (22), 12783-12793.
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- [8].Q Yan, X Zhang, L Xie, D Guo, Y Li, Y Xu, Z Xiao, K Di, L Xiao, "Weak Dust Activity Near a Geologically Young Surface Revealed by Chang'E-3 Mission", *Geophysical Research Letters* 46
- [9].X. Meng, S. Liu, Y. Xu, L. Fu, Application of Laplace Domain Waveform Inversion to Cross-Hole Radar Data, *Remote Sensing*, 11(16):1839, 2019.
- [10].Fan Yang, Yi Xu*, Kwing Lam Chan, Xiaoping Zhang, Guoping Hu, Yong Li, "Study of Chang'E-2 Microwave Radiometer Data in the Lunar Polar Region", *Advances in Astronomy*, 2019.
- [11].Y. Dang, L. Xiao, Y. Xu, F. Zhang, J. Huang, J. Wang, J. Zhao, G. Komatsu, Z. Yue, "The Polygonal Surface Structures in the Dalangtan Playa, Qaidam Basin, NW China: Controlling Factors for their Formation and Implications for Analogous Martian Landforms," *Journal of Geophysical Research*
- [12]. Yi Xu, Jun Yang, Rami Melhem, "A Process Variation Tolerant Method for Nanophotonic On-Chip Network", *Journal on Emerging Technologies in Computing Systems*, June 2018 (Accepted)
- [13]. Yi Xu, Kaidi Su, METHOD OF SORTING OBJECTS IN AN IMAGE, Australian Patent No. 2018100159, 2018.
- [14]. Sheng Gou, Zongyu Yue, Kaichang Di, Yi Xu, "Quantitative comparison of morphometric and hydrological characteristics of valley networks between Evros Vallis on Mars and Kaidu River in Tarim Basin as terrestrial analog", *Journal of Remote Sensing*, Vol. 22, No. 2, pp. 313-323, 2018.
- [15]. Jialong Lai, Yi Xu, Xiaoping Zhang, Zesheng Tang, "Lunar Regolith Stratigraphy Analysis Based On The Simulation of Lunar Penetrating Radar Signals", *Advances in Space Research*, Vol. 60, Issue 9, pp. 2099-2107, 2017.

- [16]. Cheng Z., Xiao L., Wang H., Yang H., Li J., Huang T., Xu Y., Ma N. Bacterial and Archaeal Lipids Recovered from Subsurface Evaporites of Dalangtan Playa on the Tibetan Plateau and Their Astrobiological Implications, *Astrobiology*, 17(11):1112-1122, 2017.
- [17]. Long Xiao , Jiang Wang, Yanan Dang, Ziyi Cheng, Ting Huang, Jiannan Zhao, Yi Xu, Jun Huang, Zhiyong Xiao, Goro Komatsu, “A new terrestrial analogue site for Mars research: The Qaidam Basin, Tibetan Plateau (NW China),” *Earth-Science Reviews*, Vol. 164, Jan. 2017, Pages
- [18]. Jialong Lai, Yi Xu, Xiaoping Zhang, Zesheng Tang, “Structural analysis of lunar subsurface with Chang'E-3 lunar penetrating radar,” *Planetary and Space Science*, Vol.120, pp.96-102, 2016.
- [19]. XU, Yi and CHEN, Jiexiang, “METHOD FOR EDGE DETECTION”, Australian Innovation Patent 2016101504, 2016.
- [20]. G. Chen, Y. Xu, X. Hu, X. Guo, J. Ma, Y. Hu, Y. Xie, “TSocket: Thermal Sustainable Power Budgeting”, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, Vol. 21 Issue 2, Jan. 2016.
- [21]. Y. Xu, J. Yang, R. Melhem, “BandArb: mitigating the effects of thermal and process variations in silicon-photonics network,” *Proceedings of the 12th ACM International Conference on Computing Frontiers*, May 2015.
- [22]. Yi Xu, Bo Zhao, Youtao Zhang, Jun Yang, “Simple Virtual Channel Allocation for High-Throughput and High-Frequency On-Chip Routers,” *ACM Transactions on Parallel Computing*, Vol.2, Issue 1, 2015.
- [23]. Yi Xu, Sudeep Pasricha, “Silicon Nanophotonics for Future Multicore Architectures: Opportunities & Challenges,” *IEEE Design & Test of Computers*, Vol. 31, Issue 5, 2014.
- [24]. Zhiguo Meng, Yi Xu, etc. “Influence of Lunar Topography on Simulated Surface Temperature”, *Advances in Space Research*, Vol. 54, Issue 10, pp. 2131–2139, Nov. 2014.
- [25]. Zhiguo Meng, Yi Xu, etc. “Inversion of lunar regolith thickness with CELMS data using artificial neural network method”, *Planetary and Space Science*, Vol. 101, p. 1-11, 2014 .
- [26]. Xing Hu, Yi Xu, etc. “ TSocket: Thermal Sustainable Power Budgeting”, the 50th Design Automation Conference (DAC), San Francisco, 2014.
- [27]. Xing Hu, Yi Xu, Yu Hu, Yuan Xie, “Swimming Lane: A Composite Approach to Mitigate Voltage Droop effects in 3D Power Delivery Network”, the 19th Asia and South Pacific Design Automation Conference (ASP-DAC), 2014. (acceptance rate:31%)
- [28]. Zhe Wang, Shuchang Shuan, Ting Cao, Junli Gu, Yi Xu, etc., “WADE: Writeback-Aware Dynamic Cache Management for NVM-based Main Memory System”, *ACM Transactions on Architecture and Code Optimization & HIPEAC*, 2014.
- [29]. Jia Zhan, Matt Poremba, Yi Xu, Yuan Xie, “No Δ : Leveraging Delta Compression for End-to-End Memory Access in NoC Based Multicores”, the 19th Asia and South Pacific Design Automation Conference (ASP-DAC), 2014. (Best Paper Candidate)
- [30]. Yi Xu, Jun Yang, Rami Melhem, “A Process Variation Tolerant Design for Nanophotonic Networks”, the Proceedings of the 39th International Symposium on Computer Architecture (ISCA-39), Portland, Oregon, 2012.(acceptance rate: 47/262=17.9%)

- [31]. Yi Xu, Jun Yang, Rami Melhem, "Channel Borrowing: An Energy-Efficient Nanophotonic Crossbar Architecture with Light-Weight Arbitration", the International Conference on Supercomputing (ICS), Venice, Italy, 2012. (acceptance rate:22%)
- [32]. Yi Xu, Yu Du, Youtao Zhang, Jun Yang, "A Composite and Scalable Cache Coherence Protocol for Large Scale CMPs", 25th International Conference on Supercomputing (ICS-25), Tucson, Arizona, 2011. (acceptance rate: 35/161=21.7%)
- [33]. Yi Xu, Bo Zhao, Youtao Zhang, Jun Yang, "Simple Virtual Channel Allocation for High Throughput and High Frequency On-Chip Routers", 16th International Symposium on High-Performance Computer Architecture (HPCA-16), India, 2010. (acceptance rate: 32/175 = 18.3%)
- [34]. Xiuyi Zhou, Jun Yang, Yi Xu, Youtao Zhang, Xuandong Li, "Thermal Management for 3D Processors via Task Scheduling", IEEE Transactions on Parallel and Distributed Systems, Jan. 2010.
- [35]. Yi Xu, Yu Du, Bo Zhao, Xiuyi Zhou, Youtao Zhang, Jun Yang, "A Low-Radix and Low-Diameter 3D Interconnection Network Design", 15th International Symposium on High-Performance Computer Architecture(HPCA-15), Raleigh, North Carolina, pp. 30-41, 2009. (acceptance rate: 35/184=19%, Nominated for the best paper reward)
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