

## **PERSONAL INFORMATION**

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Github: <https://github.com/dejunqi2008>

## **EDUCATION**

### **DePaul University - Chicago, IL**

September 2014 - March 2017 (Expected)

Master of Science in Computer Science

- GPA: 3.61 / 4.00
- Key Courses: Software development, Database, Algorithms, Machine Learning, Scientific Computing

### **University of Arkansas Fayetteville, AR**

2008 August - May 2014

Doctor of Philosophy in Physics

- GPA: 3.74 / 4.00
- Dissertation: From Graphite to Graphene via Scanning Tunneling Microscopy

### **Harbin University of Science and Technology**

September 2004-July 2008

Bachelor of Science in Physics

- GPA: 3.01/4.00
- Key course: Calculus, Statistics, Linear Algebra, Mathematical method for Physics, Theoretical physics

## **EXPERIENCE**

### **Research Assistant,**

University of Arkansas, 2010 Aug -2014 May

- Performed ultra-high vacuum scanning tunneling microscopy research on grapheme and semiconductor materials.
- Developed method of using scanning tunneling microscopy to control vibration and geometry of suspended grapheme, resulting in the first published report of high quality atomic resolution image of suspended grapheme via STM.
- Designed and implemented fabrication processes for stable and high resolution STM tip

### **Physics Lecturer,**

University of Arkansas, 2009 Aug - 2014 May

- Taught introductory physics courses at the undergraduate level;
- Developed a team player perspective while working with students in classes;
- Developed and demonstrated strong verbal communication skills by explaining highly technical concepts to a novice audience;

## **PROJECTS**

### **Smartphone-Based Recognition of human activities and postural transitions**

- Designed and implemented machine learning algorithm to analyze human activity signal recorded via smartphone.
- Used support vector machine (SVM), systematically studied how different kernel the classification result.
- Successfully classified 12 movements with error rate less than 10 %.

### **Content Management System** (<https://github.com/dejunqi2008/content-management-system>)

- A full stack content management system website that was developed using PHP, and JavaScript in combination with Bootstrap framework.
- Implemented a control panel that allows administrator to add, view, edit, and delete posts, comments, and category.

### **Online shopping bookstore app (<https://github.com/dejunqi2008/ECT410-final>)**

- A fully functional full stack online shopping store that includes function of user registration, login, shopping cart, and payment method. Bootstrap and standard CSS were used for front-end design; C# .NET framework were used for server side programming.

### **Investigation on fundamental electronic and mechanical properties of graphene via atomic-scale imaging and manipulation**

- Tracked ripples in freestanding Graphene for 1<sup>st</sup> time by discovering the vibration of graphene membranes in 35 nanometers under particular circumstance
- Characterized graphene's bonding effect on platinum nanoparticle of 2 to 5 nanometer size
- Integrated molecular beam epitaxy chamber with scanning tunnel microscope system

### **SKILLS**

- **Python:** Web2py, Django, NumPy, SciPy
- **Java:** JavaEE technology - JDBC, JSP, Java Servlet, Java Bean
- **JavaScript:** jQuery, Angular, NodeJS, Express
- **C#:** dotNET
- **Database:** MySQL, Oracle, MongoDB, SQLite
- **Others:** SQL, PHP, HTML, CSS, MATLAB, Octave, C

### **CERTIFICATES**

- Machine Learning by Stanford University on Coursera. December 2, 2015
- Front-End JavaScript Frameworks: AngularJS by The Hong Kong University of Science and Technology on Coursera. December 17, 2015

### **PUBLICATIONS**

Multilayer graphene, Moiré patterns, grain boundaries and defects identified by scanning tunneling microscopy on the m-plane, non-polar surface of SiC, P. Xu, **D. Qi**, J.K. Schoelz, J. Thompson, P.M. Thibado, V.D. Wheeler, L.O. Nyakiti, R.L. Myers-Ward, C.R. Eddy Jr., D.K. Gaskill, M. Neek-Amal, F.M. Peeters Carbon 50, 75-81 (2014).

Peng Xu, Lifeng Dong, Mehdi Neek-Amal, Matt L. Ackerman, Jianhua Yu, Steven D. Barber, J. Kevin Schoelz, **Dejun Qi**, Fangfang Xu, Paul M. Thibado, and Francois M. Peeters, Self-Organized Platinum Nanoparticles on Freestanding Graphene (accepted by ASC Nano)

Membrane amplitude and triaxial stress in twisted bilayer graphene deciphered using first-principles directed elasticity theory and scanning tunneling microscopy M. Neek Amal, P. Xu, **D. Qi**, P.M. Thibado, L.O. Nyakiti, V.D. Wheeler, R.L. Myers-Ward, C.R. Eddy, Jr., D.K. Gaskill, and F.M. Peeters Physical Review B 90, 064101 (2014).

Unusual ultralow frequency fluctuations in freestanding graphene P. Xu, M. Neek-Amal, S. D. Barber, J. K. Schoelz, M.L. Ackerman, P. M. Thibado, A. Sadeghi, and F.M. Peeters Nature Communications 5, 3720 (2014). Click here for more information about this study.

Atomic-scale movement induced in nanoridges by scanning tunneling microscopy on epitaxial graphene grown on 4H-SiC(0001) P. Xu, S. D. Barber, J. K. Schoelz, M. L. Ackerman, **D. Qi**, P. M. Thibado, V. D. Wheeler, L. O. Nyakiti, R. L. Myers-Ward, C. R. Eddy, Jr., and D. K. Gaskill, "Journal of Vacuum Science and Technology B 31(4), 04D101

Graphene Manipulation on 4H-SiC(0001) using Scanning Tunneling Microscopy P. Xu, M. L. Ackerman, S. D. Barber, J. K. Schoelz, **D. Qi**, P. M. Thibado, V. D. Wheeler, L. O. Nyakiti, R. L. Myers-Ward, C. R. Eddy, Jr., and D. K. Gaskill,

*Japanese Journal of Applied Physics* 52, 035104,

Electronic Transition from Graphite to Graphene via Controlled Movement of The top Layer with Scanning Tunneling Microscopy” P. Xu, Y. Yang, **D. Qi**, S. D. Barber, J. K. Schoelz, M. L. Ackerman, L. Bellaiche, and P. M. Thibado, *Physical Review B* 86, 085428

Electromechanical properties of freestanding graphene functionalized with tin oxide (SnO<sub>2</sub>) nanoparticles L. Dong, J. Hansen, P. Xu, M. L. Ackerman, S. D. Barber, J. K. Schoelz, D. Qi, and P. M. Thibado, *Applied Physics Letters* 101, 061601

New scanning tunneling microscopy technique enables systematic study of the unique electronic transition from graphite to graphene P. Xu, Y. Yang, S. D. Barber, J. K. Schoelz, **D. Qi**, M. L. Ackerman, L. Bellaiche, and P. M. Thibado, *Carbon* 50, 4633

A pathway between Bernal and rhombohedral stacked graphene layers with scanning tunneling microscopy P. Xu, Y. Yang, **D. Qi**, S. D. Barber, M. L. Ackerman, J. K. Schoelz, T. B. Bothwell, S. Barraza-Lopez, L. Bellaiche, and P. M. Thibado, *Applied Physics Letters* 100, 201601

High-percentage success method for preparing and pre-evaluating tungsten tips for atomic-resolution scanning tunneling microscopy J. K. Schoelz, P. Xu, S. D. Barber, **D. Qi**, M. L. Ackerman, G. Basnet, C. T. Cook, and P. M. Thibado, *Journal of Vacuum Science and Technology B* 30(3), 033201

Atomic control of strain in freestanding graphene P. Xu, Y. Yang, S. D. Barber, M. L. Ackerman, J. K. Schoelz, **D. Qi**, I. A. Kornev, L. Dong, L. Bellaiche, S. Barraza-Lopez, and P. M. Thibado, *Physical Review B* 85, 121406(R)