XIAOWEN ZHANG

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EDUCATION

University of Michigan, Ann Arbor *Jan 2014 - Present*
B.S. in Mechanical Engineering
Minor in Computer Science
Course works: Algorithm & Data Structure, Computer Architecture, Web Databases & Information Systems, Probabilistic & Statistics
Overall GPA: 4.00
Core GPA: 4.00

Shanghai Jiao Tong University, Shanghai *Sept. 2012 - Present*
B.S. in Electrical Computer Engineering
Overall GPA: 3.62
Core GPA: 3.64

RESEARCH EXPERIENCE

MECHATRONICS & SUSTAINABILITY RESEARCH LAB May 2015 - Aug. 2015 —
Research Assistant *Annn Arbor, MI*

- Worked with professor **Chinedum Okwudire** and **Xin Dong** to develop **VAN**, a novel vibration-assisted nano-positioning stage
- Investigated in non-linear friction behavior
- Built a mathematical and dynamic model
- Developed the prototype

STRUCTURAL DYNAMICS & CONTROL LAB Jan. 2015 Apr. 2015
Research Assistant *Ann Arbor, MI*

- Worked with professor **Ryan Harne** and professor **Kon-Well Wang** to develop an **Active Metastable Module** for adaptive structures
- Proposed and developed a controllable, compact, and metastable mechanism that is potentially able to actively adapt to dynamic conditions

PROJECT EXPERIENCE

Office Hours of The Dead Sept. 2015 - Present
Course Project *Ann Arbor, MI*

- Implement a game program to pop "zombies" from different priority queues
- Implement a pairing heap for priority queues
- **Keywords**: C++, Priority Queue, Pairing & Binary Heaps, STL

LC2K Computer Simulator Sept. 2015 - Oct. 2015
Course Project *Ann Arbor, MI*

- Implemented an 8-register, 32-bit computer using C
- Developed an assembler and simulator
- Constructed a computer architecture
- **Keywords**: C, Assembly Language, Machine Code, Register File

Vibration Nanopositioning Stage May 2015 - Aug. 2015
Research Project *Ann Arbor, MI*

- Developed a prototype of a nanopositioning stage with remarkable settling time
- Carried out modal analysis on 8-DOF systems
- Developed an adaptive friction compensator
- Identified friction parameters with experimental data
- **Keywords**: Non-linear friction, Frequency Response Analysis, PPI control, modal analysis, adaptive friction compensator, prototype development

Active Adaptive Modular Structure Jan 2015 - Apr. 2015
Research Project *Ann Arbor, MI*

- Proposed a controllable, compact, and metastable mechanism
- Developed a mechanically adaptive modular structure
- Validated the dynamic mechanical properties of the module
- **Keywords**: Compliant Structural Analysis, Mathematical Modelling, 3-D Modelling, Laser Cutter, CNC, Waterjet, Experiment Design, MATLAB

Cigar Box, a Control Theory Simulator Jan 2015 - Apr. 2015
Course Project *Ann Arbor, MI*

- Simulated and realize various control schemes with a cigar box with powered-sliders and knobs.
- **Keywords**: Arduino, Simulink, PID control, Lead & Lag compensator, Stability, Controller & Observer Design, C++

Laser Reflecting Mechanism Jan 2015 - Apr. 2015
Course Project *Ann Arbor, MI*

- Designed, built, and tested a four-bar linkage mechanism to reflect designated laser beams onto target position.
- Visualized and practised fundamental knowledge in mechanical engineering in a similar way to solve real-life engineering problems
- **Keywords**:Four-bar linkage, manufacturing, Adams, 3-D modelling, motors, Arduino, design

Visualization of Sampling and Aliasing Sept. 2014 - Dec. 2014
Course Project *Shanghai, China*

- Visualized the effect of sampling and aliasing by flashing light of varied frequencies on a series of water drips with a stroboscope.
- Designed and built a test-bed exclusively for visualization purpose.
- **Keywords**: Sampling, Aliasing, Visualization, Stroboscope

Robotic Hand Mar. 2014 - Aug. 2014
Course Project *Shanghai, China*

- Designed and built a robotic hand to tie/untie knots in the shortest amount of time.
- **Keywords**: Robotics, CAD drawing, Cost Evaluation, Arduino, Problem-solving

Rope Climbing Robot Sept. 2013 - Dec. 2013
Course Project *Shanghai, China*

- Designed and built a robot that could climb up/down a rope automatically/upon direction.
- Changed implementations to accelerate its speed.
- **Keywords**: Robotics, Arduino, Creativity, C++

A Novel Security System for Bikes Sept. 2012 - Dec. 2012
Course Project *Shanghai, China*

- Designed, built, and tested a novel security system for bikes using capacitive touch panels and integrated it with traditional bike locks.
- Designed and built a water-proof casing for the new system
- **Keywords**: Innovation, Real-world problem solving, Team work, Cost minimization, C++

WORK EXPERIENCE

Eve by Eve's Aug. 2015 - Present —
Web Developer *Annn Arbor, MI*

- Design and develop an interactive e-commerce site; ameliorate the content management system
- Responsible for a advertisement project
- Rebuild an inventory and an order tracking database, which saves huge potential maintenance costs
- **Keyworkds**: MySQL, PHP, JavaScript, XML, CMS

Qingyuan Electricity Jan. 2013 - Apr. 2013
Mechanical Engineer *Chengdu, China*

- Designed various mechanical components for hydraulic power plants with CAD softwares like SolidWorks, UG, etc
- Performed quality inspection on mechanical devices and blueprints examination
- **Keywords**: Quality Inspection, CAD, Hydro-plant

Shanghai Jiao Tong University Sept. 2013 - Dec. 2013
Teaching Assitant *Shanghai, China*

- Worked with professor **Mateusz Krzyzosiak** to teach freshmen students VP140, an undergraduate physics class
- Held recitation session for undergraduate physics class
- Designed and graded homework and exams to innovate in both content and form of the class
- **Keywords**: Physics, Innovation in class, Presentation

TECHNICAL STRENGTHS

Computer Languages	C++, C, Java, Python, Latex, HTML, CSS, Javescript, PHP
Modeling Softwares	SolidWorks, Adams, CAD, MATLAB(Simulink), Ansys
Testing Platform	Labview, Soloist, Dspace
Databases	MySQL
Tools	Emacs

PUBLICATION

Xin Dong, Xiaowen Zhang, Chinedum E. Okwudire. *A novel approach for reducing the settling time of roller bearing nanopositioning stages using high frequency vibration.* ASPE, 2015.

INVOLVEMENT

Member of MAAV (Michigan Autonomous Aerial Vehicles)

Initiate of *Pi Tau Sigma*

Member of Shanghai Jiao Tong University Alumini Association in University of Michigan

President of General Electrics - Shanghai Jiao Tong University Campus Association

Department Chief of SJTU Joint Institute Student Association

Corner Back of SJTU *Lion* American Football Team