

JANE SMITH

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EXPERTISE

Investigative Problem Solving

- Integrating advanced functional materials to increase overall system performance and expand applications
- Designing and building custom research tools and experiments to explore and improve material properties

Complex Data Analysis

- Interpreting structural and chemical signatures of nanomaterials to identify pathways for future development
- Troubleshooting synthesis challenges to implement research strategies to improve device performance and yield

Nanofabrication Process Engineering

- Developing innovative fabrication processes for 3D nanoelectromechanical systems (NEMS) architectures
- Creating and optimizing novel piezoelectric transducers for future medical imaging techniques

Communication and Leadership

- Initiating global collaborations between materials engineers, medical scientists, and simulation experts
- Teaching undergraduate courses on materials engineering and mentoring researchers on process engineering
- Speaking three languages

EDUCATION

PhD Materials Science and Engineering, Minor in Physics GPA: 3.84/4.0 Aug 2013—May 2018
Georgia Institute of Technology Atlanta, GA

- *President's Fellowship* for promising graduate researchers

BS Materials Science and Engineering GPA: 3.72/4.0 Aug 2009—May 2013
Pennsylvania State University, Schreyer Honors College University Park, PA

- *EMSAGE Laureate* for scholarship, global literacy and experiential learning, and service
- 16 scholarships and grants for research, international travel, and academic achievement

Engineering Design—Study Abroad June—July 2010
National University of Singapore Singapore

LEADERSHIP

Gilman Scholarship Recipient

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Georgia Institute of Technology July 2013—present

- Led a multinational collaboration with a French research team to create 2D heterostructures
- Counseled researchers at Georgia Tech on piezoelectric processing to accelerate technology development
- Recommended specifications for significant research equipment purchases valued over \$100,000
- Advised Institute for Electronics and Nanotechnology hiring board after interviewing Executive Director candidates
- Established a collaboration with the Nanoscience Research Group to integrate nanowire technology into NEMS

Pennsylvania State University Sept 2011—May 2013

- Presented research to Pennsylvania State Congressmen to lobby for increased state research funding
- Launched an international collaboration between materials scientists and simulation experts in Germany
- Authored accepted proposal for a research travel grant from the International Internship in Materials program
- Mentored junior researchers on piezoelectric films, microfabrication, and process engineering

Penn State University Ski Team Physical Conditioning Coach and Athlete Fall 2011—Spring 2013

- Coordinated and led daily conditioning workouts for the team of 50 racers
- Coached athletes to improve personal performance and accelerate injury recovery

RESEARCH EXPERIENCE

PhD Thesis: *Hexagonal Boron Nitride for Passivation and Gating of Graphene Devices*

Research Lab 1, Georgia Institute of Technology Atlanta, GA Aug 2014—current

- Design and fabricate custom deposition tools for reliable graphene processing of 100s of samples
- Investigate 2D materials via an array of characterization methods to extract performance and quality metrics

Research Lab 2, Georgia Tech Lorraine Metz, France Apr 2016—current

- Integrated with French research team for 2 month on-site study of boron nitride growth
- Achieved first large area growth of 2D boron nitride on epitaxial graphene via metalorganic vapor phase epitaxy

Graduate Research: *Conformal Piezoelectric Films for 3D NEMS Resonators and Sensors*

Research Lab 3, Georgia Institute of Technology Atlanta, GA Jul 2013—Aug 2014

- Pioneered 3D piezoelectric NEMS by inventing atomic layer deposition (ALD) methods for ordered AlN (FWHM 3.7°)
- Proposed novel device architectures with technology created in partnership with the Research Lab 4

Research Lab 4, Georgia Institute of Technology Atlanta, GA Oct 2013—Aug 2014

- Synthesized 100% dense and conformal ZnO nanorod films via a modified precipitation process on ALD seed layers
- Won Institute for Electronics and Nanotechnology's imaging contest Grand Prize for a micrograph of nanorods

Undergraduate Honors Thesis: *Ultrasonic Transducers for High Resolution Imaging and Sonotweezing*

Research Lab 5, Pennsylvania State University University Park, PA Oct 2009—May 2013

- Published piezoelectric micromachined ultrasonic transducer (pMUT) arrays in the peer-reviewed journal, *Sensors*
- Developed and implemented a 6 photomask microfabrication process flow and optimized individual processes
- Researched PZT piezoelectric properties and low temperature processes to improve optic performance

Research Lab 6, University of Dundee Dundee, United Kingdom Sep 2012

- Achieved the first pMUT pulse-echo response from wide bandwidth 55 MHz devices (85% correlation to simulation)

Research Lab 7, Friedrich-Alexander University Erlangen, Germany Aug—Dec 2012

- Interned in Germany for 4 months to identify design rules for pMUTs
- Simulated devices via finite element analysis and reduced computation time by 50% by simplifying physics model

International Engineering Design: *Multi-Impact Tolerant Motorcycle Helmet for Use in Developing Countries*

Engineering Design, National University of Singapore Singapore June—July 2010

- Collaborated with a global team to propose culturally relevant solutions for products in developing countries
- Consulted with experts in polymer science and impact mechanics to improve second impact absorption by 235%

TEACHING EXPERIENCE

Graduate Teaching Assistant, School of Materials Science and Engineering, Georgia Tech Fall 2014—Spring 2015

- Instructed and designed scanning electron microscopy laboratory experiences for over 200 undergraduate students
- Mentored student teams through their semester long engineering design senior projects
- Lectured during Principles and Applications of Engineering Materials to over 100 students on electronic properties

Course Instructor, College of Health and Human Development, Pennsylvania State University Spring 2010

- Taught and developed curricula for Penn State kinesiology beginner alpine skiing course for 20 students

PUBLICATIONS and PRESENTATIONS

1. C. Johnson, D. Doe, **J. Smith**, *et al*, Graphene for Nanoelectronics, *Graphene Book*, 2016.
2. Y. Johnson*, **J. Smith** *, M. Wang, *et al*, Imaging devices for cool applications, *Sensors*, vol. 16 no. 4, , 2015. *These authors contributed equally to this work
3. **J. Smith**, Z. Wang, F. Little, Plasma-Enhanced Atomic Layer Deposition of AlN for Nanoelectromechanical Systems Resonators. Orlando, FL. 26 June 2014.
4. **J. Smith** and S. Klein, PZT-based Devices for Imaging Applications. B.S. Thesis, Pennsylvania State University, 2013.
5. **J. Smith**, C. Doe, S. Yang, S. Klein, Small Devices for Pill Sized Systems, *Undergraduate Research at the Capitol—Pennsylvania*. Harrisburg, PA. 19 March 2013.

Helluva Engineer

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EDUCATION

Georgia Institute of Technology, Atlanta, GA Aug 2013 – May 2018

- Candidate for Bachelor of Science in Industrial Engineering
- GPA: 3.3

Study Abroad, The Gilman Scholarship

May 2016 – Aug 2016

WORK EXPERIENCE

PricewaterhouseCoopers LLP, Atlanta, GA May 2017 – Aug 2017

Assurance Analyst Intern

- Assigned to China State Construction Engineering Corporation Team
- Consolidated amounts of both uncollected receivable accounts and bad debts
- Visualized large datasets of liabilities through Excel powerpivots for financial statement preparation
- Contacted clients to recover uncollected receivable accounts with overall 95% success rate

Delta Air Lines, Atlanta, GA

Jan 2015 – Aug 2016

Continuous Improvement Co-op

Call Handle Time Analysis

- Analyzed call data to determine system and behavioral differences among Delta reservation specialists
- Optimized work flow procedures for call purposes to minimize average call length
- Projected improved performances resulted in savings between \$1.5 to 2 million annually

Abusive Customer Compensation Systems

- Studied current compensation methods to understand where inconsistent practices occur
- Detailed additional security and systematic flaws within reservations system that lead to such practices
- Recommended system and policy enhancements with projected savings around \$1 million

PROJECTS

Georgia Institute of Technology

Analysis of High Density Storage Research

- Conducted case studies on storage systems in use at Gilmer Warehouse and Home Depot
- Determined benchmarks for metrics such as space utilization, distance, cost effectiveness using Excel
- Collaborated with Dr. Chen Zhou to establish effectiveness of two-storage system based on product profiles

Georgia Institute of Technology

Regression and Forecasting Analysis

- Determined to estimate per movie revenues through forecasting and regression analysis
- Collected data about movies including ratings, production costs, critical receptions, and release dates
- Used R and Minitab Software to analyze data and draw conclusions about the independent variables
- Tabulated results and drafted technical report with findings for final review

SKILLS

ISYE: Probability Outcasts, Statistical Analysis, Regression Analysis, Logistic Modeling, Simulation & Analysis Design, Optimization, Supply Chain Economics, Stochastic Modeling

Software: Microsoft Office Suite, Adobe InDesign, Minitab, 'R', Tableau, SAS, Arena

Programming: HTML, Python, SQL

Foreign Language: Conversational levels of French, Spanish

Communication: Public Speaking (Speech, Presentation, Proposal, Letters, Teamwork)

Interests: Aviation, Movies, Dancing, Guitar, Lyrics Writing, Photography

LEADERSHIP/ACTIVITIES

Gilman Scholarship, Study Abroad

May—Aug 2016

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GT1000, Georgia Institute of Technology

Aug 2014—Present

Team Leader

- Instruct group of first-year students on weekly basis over various Tech-related events and programs
- Provide support for assigned group of students on topics covered in class

Team Leader Advisory Board, GT1000, Georgia Institute of Technology

Jan 2015 –Dec 2015

Communications Director

- Lead with small group of peers to coordinate efforts for the GT1000 program
- Coordinated recruitment and training events for team leaders and instructors
- Conducted surveys among leaders to understand program inconsistencies for future program improvement
- Created weekly memos for team leaders providing help with instructing students and upcoming events

The Technique, College Newspaper, Georgia Institute of Technology

Aug 2013 – May 2015

Opinions Editor

- Interviewed various heads of campus and wrote stories on a weekly basis
- Managed the editing and laying-out process for the paper's Opinions section
- Reviewed writers for the Opinions section

Cover Letters

A well-written cover letter establishes a connection between you, the applicant, and the recruiter by detailing the qualifications you have for a particular job. It helps the reader navigate your resume, and “fleshes-out” your areas of expertise and experience. Simply put, an effective cover letter can get you an interview through its narrative about your resume. *In an ideal world, your cover letter gets read before your resume.* It directs your reader how to access the information in the resume and, as such, is considered a *directional document*. A detailed cover letter is an essential component of the job search, and can supplant the resume in importance when used effectively.

You will craft a letter based on details from the job posting and/or information you find in research about the company and the position. In order to decide/find out if you are qualified for a particular job, **you will need to possess at least three of the necessary skills** to perform the daily tasks of that job. A job posting will almost always provide a list of these skills, usually as requirements, responsibilities, or duties. These skills will come directly from your resume and originate in classes, work experience, academic projects, and leadership roles.

Your search for these required skills will be made easier if you realize that they come from easily defined areas. These three areas are as follows:

- Your major/ concentration within your major/ research/ area of expertise on the job
- Tool/ Software/ Instrumentation/ Data/ Lab protocol and procedure
- Communication and/or Leadership

Gilman Scholarship recipients should pay attention to the third and last requirement because the best skills you attain while studying abroad will often be communication and leadership. They are also the most important skills necessary for a management-track job. And all of you should consider yourselves management track. Your experience while studying abroad will equip you with line items for your resume (in the Leadership section, as a rule) as well as a concrete example you can use in your cover letter. *In your letter, you'll identify the skill, show how you acquired it, what you did with it, and provide the end result.*

When using email to apply for a position, and you have a person's name to receive your letter, you type, or paste the letter directly into the body of the email, and then attach your resume; do **not** create an attachment for each.

Note: If you don't have an actual person's name—usually you won't--simply address to *Dear Human Resources*, or something comparable. Do **not** use “To Whom It May Concern:” or, even worse, “Dear Sir/Madam:”. Such salutations are stiff and antique sounding.

These letters follow the typical three-paragraph business letter format. They are left-justified, with a ‘ragged’ right margin, contain no indentation, and have one space between paragraphs.

Begin with *your address*, then *date* below. Skip two or three lines. *Type the recipient's full name, with no gender title, or Human Resources. Company name and address* follows. Skip the same number of lines. Use a colon, not a comma, after the name.

The **opening paragraph** is usually no more than two sentences, shows the reader where you found the ad or notice, the job description, and three qualifications you possess that will make you an ideal candidate to interview. This opening sets the stage, and shows your attention to detail, as well as showing you've read the job posting with care.

Your letter should always begin with focus on the reader—as in the use of the word 'you' or 'your'—and **never** begin with the word "I." Use of the 'you-view' shows respect for the time and interests of the reader. The example below shows you the formula for the first paragraph:

Letter Opening Example I

"Your posting on monster.com for a software specialist with networking skills interests me. With my computer experience, application knowledge, and communication skills, I can serve ___ well."

Many companies do not advertise job openings, for a variety of reasons. If you are interested in working for a company, but it has not advertised any available positions, you can try a variation on this opening. This method of job application is called "fishing," and has proven useful for some applicants. Studies show that as much as 15 percent of all job interviews are obtained in this manner.

Letter Opening Example II

"Can name of company/ your company use the services of a software specialist, who has an emphasis on networking and security, and possesses proven communication skills? I am interested in working for you as a ___." Here is where it can get tricky. You can provide a general description of the ideal job you seek with the company, but don't be too specific. Use the three qualifications you bring with you. The details of these qualifications are critical, but don't make them too defined.

Do **not** begin your letter with "I am seeking a position as ___," or "I have just graduated with a degree in ___, and wondered if you had any openings for a ___," or "I feel your company is the foremost authority on ___, and working for you would be a wonderful opportunity for me."

Recruiters don't seek your praise for them or their company; they want to know the details of your qualifications. Neither your life story nor adulation of the company is going to get you the consideration that three relevant detailed listed skills will.

The **body paragraphs** are where you do your best—and hardest--work by showing the recruiter the details of your qualifications, when and where you acquired them, and some of the results. Begin by careful analysis of your three selected qualifications and explain where they originated and how you have used them. "Show" your reader how you have implemented any attained knowledge, how you have been focused, dedicated, attuned to good work and marketability.

Quantify with numbers, facts, statistics, and end results of your assignment or project. Now is not the time for false modesty. Provide hard details, and good nouns and verbs.

You began your letter with a focus on the reader; now it's your turn. If you don't grab your reader's attention immediately with good, telling details, numbers, verbs, and outcomes, you run the risk of losing his or her interest. And your letter will end up at the bottom of the stack, or not even get printed out.

A cover letter is rarely longer than one page, but don't worry about the length of your body paragraphs. The usual method of providing details about each skill is to give an instance of implementation, explaining how, why, and end result. These paragraphs must be detailed and are usually rife with numbers, jargon, percentages. You'll find yourself beginning many/most sentences with the word 'I,' which is fine. You have to show yourself at work, in order for a hiring manager to know how you will work

Your closing paragraph is formulaic as well, and where you wrap up your package and reiterate your request. Keep it pleasant, and stay focused on your request for an interview. Use the following wording:

"After you have read my resume for the details of my qualifications, I will be happy to answer any questions. Please contact me at ____, so we can discuss how my computer experience, abilities with networking security, and proven communication skills will benefit you at ____."

Notice it's a restating and reminder of those three critical skills you created your letter around, which you know that company seeks in a new hire.

If you need to hear back from the recruiter by a certain date, you may specify it, but that can easily be interpreted as too pushy, so do so judiciously.

You can contact the company two to three weeks after your letter and resume have been received, if you haven't gotten acknowledgement. Keep your questions brief and upbeat. If your letter has been received, ask if there are any questions you can answer. Reiterate your availability. Be pleasant. A well-crafted cover letter will make all the difference, and many companies consider them to be a sort of unwritten requirement.

These letters take time to craft, especially the first one you compose. Allot enough time to get in all the details, take notes beforehand, and work from the job posting and other information as needed. The upside to this kind of work, however, is that you probably will be applying for the same kind of jobs, in the same field, so you can recycle much or most of the letter contents as many times as necessary. Be sure to change the details and recipient names and addresses.

A powerful cover letter is one in which you show knowledge, energy, attention to detail, and an ability to follow through. These are all traits a hiring manager seeks in any new-hire.

Address Line 1
Address Line 2
Date

Human Resources
Address Line 1
Address Line 2

Dear Lockheed Human Resources:

Your job opportunity on the Lockheed Martin jobsite for an Aeronautical Engineering Associate with a focus on design of structural detail parts, assemblies and installations interests me. With my experience in aerospace design, knowledge of drafting and drawing conventions, and leadership skills acquired while studying abroad, I can serve Lockheed Martin well.

My previous internship with Lockheed Martin, working on the Orion Program, provided me with exposure to efficient aerospace design, as well as Lockheed's proven approach to project development. Using PTC Pro-E, I coordinated with the design team to implement design changes to piece-parts on the Parachute Test Vehicle. I quickly learned how Lockheed integrates design changes into the current assembly while maintaining iteration history for reference. To support the analysis team, I created a Finite Element Model for modal analysis of subassemblies within the Test Vehicle. I communicated these accomplishments with a technical presentation to the Landing and Recovery Systems team at the exit of my internship.

As an undergraduate research assistant, I developed a knowledge of drawing conventions as well as design for manufacture and assembly. Over the course of my research with the Shock Tube and Advanced Mixing Lab (STAML), I helped design and fabricate a test fixture to simulate various interfaces between two gases. In order to produce clear and sufficient drawings, I implemented Geometric Dimensioning and Tolerancing (GD&T) principles. I also learned a few basic machining techniques with the mill, lathe, and water-jet in the process of fabricating the fixture. This resulted in the successful development of the test fixture, which is still used to explore new and innovative initial conditions for shock tube experimentation.

During my time as a Gilman Scholar, I studied abroad in __. I took coursework in, and worked as a ___. During one project, I found myself unable to __, which meant I could not __. I decided to communicate with __ – so that the group could __. As a result, we succeeded in winning the __, all because I was able to take the initiative to __. (Provide as many details as necessary to prove your assertion and enough details so the reader can visualize your work.)

After you review my resume for additional information on my qualifications and experience, I will be happy to answer any questions you may have. Please contact me to discuss how my experience in aerospace design, knowledge of drafting and drawing conventions, and proven leadership skills can help as an employee of Lockheed Martin.

Sincerely,
Your Name

How to Introduce Yourself Using Skills from Your Gilman Experience

Hi, I'm _____, a _____(year) graduate of Georgia Tech, with a degree in _____ (and a concentration in _____). Or, Hi, I'm _____, a _____ year, majoring in _____.

I'm *experienced* with _____; (usually a defined area from your Core study/Major/Area of Expertise on the job)

knowledgeable about _____; (Tool, Software and/or Equipment, Data, Communication/Leadership/Work Issue)

and I am interested in using _____(a particular skill you honed while studying abroad/something you acquired during your Gilman experience) to/for the purpose of/so that I can _____.

What do you have for someone with my strengths?

