

Clemson University Inventor's Club

Entrepreneurial Profiles

The Clemson University Inventor's Club is a select group of engaged faculty who have been very active in creating innovative technologies for commercialization and/or those who have created or aspire to create companies to commercialize their technologies. The Entrepreneurial Profiles provide information on members who desire to highlight their research areas, entrepreneurial experience and identifies connections they are seeking. This book will be updated periodically as additional or new members participate.



Entrepreneurial Profile

Name:	John Ballato
Title:	Professor and Director
Department:	Materials Science and Engineering



In the space provide below, please describe your research expertise and current activity:

Research expertise is in optical and optoelectronic materials; particularly optical fibers and lasers. Currently serving as Director of a research center at Clemson focused on optics and photonics and conducting research into advanced materials with designer value-added interactions with light.

Describe your entrepreneurial interest and/or experience:

Co-founder of Tetramer Technologies (1999 – present) and AEOS Fiber Optics (2010 – 2011). Interested and experienced in transferring technology, building networks, and developing product opportunities from enabling materials.

Have you participated in forming a company? If so answer the following questions:

Name of company:	Tetramer Technologies
Company website (if available):	www.tetramertechnologies.com
Your current role in the company:	Co-Owner / Board Member
Company stage? (revenue/pre-revenue)	Revenue
Company's current or anticipated products or services	Optical polymers, nanocomposites, gas separation membranes, proton exchange membranes, biorenewable materials, and piezoelectric polymers.
Level of development (i.e. proof of concept, Post launch)	Each product at different phases, some post-launch, some research, some scale-up.

What are you seeking through networking? (Funding, mentorship, education, other?)

Education and networking; being a mentor to faculty wanting to start companies

Entrepreneurial Profile



Name:	John DesJardins
Title:	Assistant Professor
Department:	Bioengineering

In the space provide below, please describe your research expertise and current activity:

Dr. DesJardins received his Ph.D. in Bioengineering from Clemson University in December 2006, and has worked for over 20 years as a biomechanical research engineer. He has co-authored over 150 peer-reviewed conference or journal publications in the areas of biomechanics, biomaterials tribology, engineering education and mechanical testing. He is the director of the Laboratory of Orthopaedic Design and Engineering at Clemson University, and the Frank H. Stelling and C. Dayton Riddle Orthopaedic Education and Research Laboratory at CUBEInC in Greenville, SC. He has led been the co-PI on many multi-disciplinary research teams on projects funded through NASA, DoT, NSF, the Gates Foundation, biomedical industry and other regional non-profit foundations. He founded and directs the Clemson University Retrieval of Explants Program and Registry in Orthopaedics (CU-REPRO) which is a regional repository that collects and studies explanted total joint devices. Finally, he is the founder of the undergraduate bioengineering study abroad programs, and directs or assists with international programs in Spain, Singapore and Tanzania.

Describe your entrepreneurial interest and/or experience:

As an assistant professor in Bioengineering, he is the director of the senior capstone design courses, where he mentors 15+ small teams annually to develop innovative biomedical devices in partnership with local industry or clinical partners. His design and entrepreneurial activities in biomechanics and biomedical devices have led to numerous patent disclosures and applications through Clemson University, and many of his undergraduate and graduate students are active in entrepreneurial and design efforts as part of their academic experiences.

Have you participated in forming a company? If so answer the following questions:

Name of company:	N/A
Company website (if available):	
Your current role in the company:	
Company stage? (revenue/pre-revenue)	
Company's current or anticipated products or services	
Level of development (i.e. proof of concept, Post launch)	

What are you seeking through networking? (Funding, mentorship, education, other?)

Design Development Resources, Mentorship, Educational Opportunities in Entrepreneurship, Professional Opportunities for our Students

Entrepreneurial Profile

Name:	Adam Hoover
Title:	Associate Professor
Department:	Electrical & Computer Engineering



In the space provide below, please describe your research expertise and current activity:	
Embedded computing, tracking systems, wearable sensing and monitors	
Describe your entrepreneurial interest and/or experience:	
I have co-founded two start-up companies and developed one software license commercializing my research. I have practical experience in electrical device manufacturing and am networked to several parts suppliers and manufacturing industries. I have experience in patent protection, SBIR/STTR funding, and licensing.	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	Bite Technologies
Company website (if available):	www.icountbites.com
Your current role in the company:	chief technology officer
Company stage? (revenue/pre-revenue)	early revenue
Company's current or anticipated products or services	wrist tracking technology for measuring energy intake (eating/consumption)
Level of development (i.e. proof of concept, Post launch)	marketing and selling product to professional/research market
What are you seeking through networking? (Funding, mentorship, education, other?)	
We are looking for a business partner to help lead us into the commercial market. We are solvent and do not need funding, but are open to ideas that may involve seeking more funding if warranted.	
Any additional comments:	
It's hard being a full-time professor and running a business at the same time!	

Entrepreneurial Profile

Name:	R. Andrew Hurley, PhD
Title:	Assistant Professor
Department:	Food, Nutrition and Packaging Sciences



In the space provide below, please describe your research expertise and current activity:

Packaging design, development and analysis. I work in a pilot plant that offers full service design, converting and manufacture of most packaging substrates. I am the professor-in-charge of CUshop, a modular and immersive 'retail store' that utilities various biometric tools (eye-tracking, skin conductivity and brain activity) to observe how consumers shop and evaluate products and packaging. We are able to determine the effectiveness of branding, design changes and the competitiveness of products and packaging within the retail array.

Describe your entrepreneurial interest and/or experience:

Have you participated in forming a company? If so answer the following questions:

Name of company:	CUshop
Company website (if available):	Cushop.sonocoinstitute.com
Your current role in the company:	Founder
Company stage? (revenue/pre-revenue)	Revenue / pending external establishment
Company's current or anticipated products or services	Biometric consumer testing, focus groups, product and package evaluation, design services
Level of development (i.e. proof of concept, Post launch)	Actively running internal projects

What are you seeking through networking? (Funding, mentorship, education, other?)

Funding, mentorship, networking and education

Entrepreneurial Profile

Name:	Joshua D. Summers
Title:	Professor and CoES IDEaS Professor
Department:	Mechanical Engineering

In the space provide below, please describe your research expertise and current activity:

Our research group, CEDAR, is focused on studying, improving, and practicing engineering design. Our efforts include developing meso-structure configurations for meta-materials, such as in vibro-acoustic modulation and low-loss shearing for non-pneumatic tires. We also have developed computational tools integrated into commercial CAD systems that can predict assembly times for mechanical systems based on historical data. With respect to requirements, we have in house tools that have been developed to predict changes to a project requirements based on initiating changes. We have developed computational tools to model mechanical system functionality at a qualitative level, yet maintain physics and transport phenomena laws. We have completed several engineering design projects for companies that include cryogenic wheel endurance testing, off-vehicle traction testing, realistic measures for mud-release from tire tread samples, large tent ballast-surface resistance coefficients, car seat redesign, and LED headlight systems design and prototyping. Our key strength is the student teams that we form to tackle the projects using the projects as research motivation and applying the developed tools for research validation.

Describe your entrepreneurial interest and/or experience:

We are most interested in preparing students for the future. This means that they need to be challenged with many diverse projects, not single research topics. Collaboration and passion are the key contributors to our success. This has resulted in four patent applications (pending), and over 20 invention disclosures from the research lab. It has resulted in extremely high rate of satisfaction for the industry sponsors, evidenced by their willingness to continue to return with new projects. Most importantly, our entrepreneurial experience is evidenced in the success of our former students in industry, with many of the rising to top levels of engineering management quickly. We are interested in the possibilities of commercializing our software tools, partnering with companies that can commercialize the tools, and working with companies that need help with their product development processes.

Have you currently participated in forming a company? If so answer the following questions:

Name of company:	N/A
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What are you seeking through networking? (Funding, mentorship, education, other?)

We are primarily interested in seeking partners for projects that can serve as educational platforms for our students.

Any additional comments:

We are interested in any opportunities that can help improve the educational experiences of our students.

Entrepreneurial Profile

Name:	David Kwartowitz
Title:	Assistant Professor
Department:	Bioengineering



In the space provide below, please describe your research expertise and current activity:	
Medical imaging, image-guided surgery, medical robotics, and medical instrumentation	
Describe your entrepreneurial interest and/or experience:	
We are developing new technologies with the ability to change healthcare and improve lives.	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	N/A
What are you seeking through networking? (Funding, mentorship, education, other?)	
Funding, partners to collaborate in development of new ideas, exposure to industrial concerns	

Entrepreneurial Profile

Name:	Hong Luo
Title:	Professor
Department:	Genetics and Biochemistry



In the space provide below, please describe your research expertise and current activity:

Dr. Hong Luo is currently a Professor in the Department of Genetics and Biochemistry of Clemson University with a research focus on molecular improvement and gene discovery in grasses and cereal crops.

After completing a Ph.D. in Molecular Biology at the Catholic University of Louvain in Belgium, Dr. Luo did his first postdoc on biochemistry and molecular biology using yeast as a model organism as well as on genetic transformation of plant mitochondria. He then accepted a postdoctoral fellowship from the European Union and from the National Center of Scientific Research of France to work on molecular marker development for genetic studies in *Gracilaria gracilis*. He did his third postdoc at the Purdue University on genetic transformation of rice and corn for genetic improvement as well as on the use of the yeast FLP/FRT site-specific DNA recombination system in plants for genome modifications. Before joining Clemson University, he was with HybriGene, Inc. as the Director of Research, working on gene transfer for trait modification in turfgrass and rice. His work led to the development of the first genetically engineered, environmentally safe, male-sterile and herbicide-resistant turfgrass plants and the development of a new method for hybrid crop production using site-specific DNA recombination systems. He currently maintains several active research projects for both basic and applied research on genetic modification of crop plants, and collaborates with scientists across continents.

Dr. Luo has taught various courses in Genetics, Biochemistry and Molecular Biology and authored or co-authored numerous research papers, book chapters and review articles, and edited a book. He is the inventor on several patents in plant biotechnology issued or in various stages of application. He also serves as an *ad hoc* peer reviewer for 26 international professional journals and serves as a reviewer or as a panel member for various federal, state and regional funding agencies.

Describe your entrepreneurial interest and/or experience:

I had worked in industry for 7 years prior to joining Clemson as a Faculty. I am familiar with how things are operated in the private companies, and would be interested in adventure of commercializing technologies I developed.

Have you participated in forming a company? If so answer the following questions:

Name of company:	N/A
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What are you seeking through networking? (Funding, mentorship, education, other?)

Through networking, I would like to seek for funding to continue my research developing new intellectual properties. It would also be great if potential partners could be identified to commercialize my patented technologies through licensing or startup business.

Entrepreneurial Profile

Name:	Igor Luzinov
Title:	Professor
Department:	Materials S&E



In the space provide below, please describe your research expertise and current activity:	
Polymeric materials, polymer films, interfacial/surface modification and functional coatings	
Describe your entrepreneurial interest and/or experience:	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	N/A
What are you seeking through networking? (Funding, mentorship, education, other?)	
Funding	

Entrepreneurial Profile

Name:	R. Kenneth (Ken) Marcus
Title:	Professor
Department:	Chemistry



In the space provide below, please describe your research expertise and current activity:

Research is best classified as analytical chemistry instrumentation development. Techniques employed include mass spectrometry and optical emission spectrometry for elemental analysis through the use of patented microplasma technology. Research also focuses on the use of novel-shaped polymer fibers for high-throughput protein separations and selective surface chemistries for the isolation targeted protein-types and antibodies.

Describe your entrepreneurial interest and/or experience:

Principal in start-up company founded in 2004.

Have you participated in forming a company? If so answer the following questions:

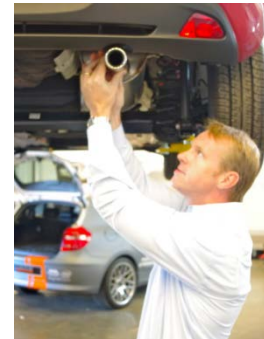
Name of company:	Specialty & Custom Fibers, LLC; SCF
Company website (if available):	http://www.specialtycustomfibers.com/
Your current role in the company:	CEO
Company stage? (revenue/pre-revenue)	revenue
Company's current or anticipated products or services	Capillary-channeled polymer (C-CP) fibers for use in advanced textile and separation science applications
Level of development (i.e. proof of concept, Post launch)	Proof of concepts

What are you seeking through networking? (Funding, mentorship, education, other?)

Potential end users, collaborators, funding, and mentorship

Entrepreneurial Profile

Name:	Laine Mears
Title:	Associate Professor
Department:	Automotive Engineering



In the space provide below, please describe your research expertise and current activity:

My work is in modeling and control of manufacturing processes, and invention of new processes and new strategies to control them; my team’s goal is to achieve what before has been seen as impossible in the manufacturing realm. Research in my lab has been successfully applied to machining, forming, metal injection molding, casting, and growth of proteins in bioreactor vessels. My aim is to give a degree of intelligence to the manufacturing process so low-level decisions can be automated and higher-level decisions by the human can be effectively supported.

Describe your entrepreneurial interest and/or experience:

Patents on processes and algorithms, discussions with software companies for teaming/consulting.

Have you participated in forming a company? If so answer the following questions:

Name of company:	Mears Manufacturing Consulting, LLC
Company website (if available):	(in development)
Your current role in the company:	Single-member
Company stage? (revenue/pre-revenue)	Revenue
Company’s current or anticipated products or services	Manufacturing process review, recommendation of control and quality improvements.
Level of development (i.e. proof of concept, Post launch)	Post-launch 4 years.

What are you seeking through networking? (Funding, mentorship, education, other?)

Looking for entrepreneur networking, discussion of avenues to startup launches. I am especially interested in IP protection and startup possibilities based on software tools developed in my lab.

Any additional comments:

Interested in pursuing launch of IP-based startup emerging from lab findings.

Entrepreneurial Profile

Name:	Dr. Eric R. Muth
Title:	Professor
Department:	Psychology



In the space provide below, please describe your research expertise and current activity:	
Weight loss and weight loss maintenance using m/Health and e/Health solutions. Specifically, using wearable monitors, such as the Bite Counter, to measure and provide feedback on food intake behavior.	
Describe your entrepreneurial interest and/or experience:	
Chief Operations Officer of Bite Technologies. Bite Technologies manufactures and sells the Bite Counter device.	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	Bite Technologies
Company website (if available):	http://www.icountbites.com
Your current role in the company:	Chief Operations Officer
Company stage? (revenue/pre-revenue)	revenue
Company's current or anticipated products or services	Bite Counter—a device for measuring food intake and providing feedback on food intake
Level of development (i.e. proof of concept, Post launch)	Post launch
What are you seeking through networking? (Funding, mentorship, education, other?)	
Mentorship; potential business partners and sub-licensees	

Entrepreneurial Profile

Name:	Jiro Nagatomi
Title:	Associate Professor
Department:	Bioengineering



In the space provide below, please describe your research expertise and current activity:	
Cell mechanics, mechanobiology, biomaterials, regenerative medicine, medical training simulators	
Describe your entrepreneurial interest and/or experience:	
Start-up company	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	MedUSim Solutions, LLC
Company website (if available):	
Your current role in the company:	Owner
Company stage? (revenue/pre-revenue)	Pre-revenue
Company's current or anticipated products or services	CLiVE (central line catheterization task trainer)
Level of development (i.e. proof of concept, Post launch)	Prototype testing with potential customers
What are you seeking through networking? (Funding, mentorship, education, other?)	
Funding, mentorship, partnership	

Entrepreneurial Profile

Name:	Apparao M Rao
Title:	R. A. Bowen Professor of Physics
Department:	Physics and Astronomy



In the space provide below, please describe your research expertise and current activity:	
Research expertise is the areas of nanomaterial synthesis, characterization (spectroscopic, electronic, and mechanical) and applications (sensors, energy storage, biomedical).	
Describe your entrepreneurial interest and/or experience:	
Our goal is to become a global leader in production, processing, and application of nanomaterials and nanotechnology products.	
Have you participated in forming a company? If so answer the following questions:	
Name of company:	SAI Global Technologies
Company website (if available):	www.saiglobalteach.com
Your current role in the company:	Founder and CTO
Company stage? (revenue/pre-revenue)	-
Company's current or anticipated products or services	Nanocoatings, carbon nanotubes, thermal interface materials, composites, nanofluids, nondestructive evaluation and materials process development
Level of development (i.e. proof of concept, Post launch)	Proof of concept
What are you seeking through networking? (Funding, mentorship, education, other?)	
Funding	

Entrepreneurial Profile

Name:	Danny H. Roberts
Title:	Assistant to VP for PSA/Economic Development
Department:	Public Service & Agriculture/Economic Development



In the space provide below, please describe your research expertise and current activity:

Bio-Resins – I have developed 100% natural resins that perform the same as plastic resins. Have disclosed a new formulation for patent using Breadfruit in the matrix.

Describe your entrepreneurial interest and/or experience:

Marketing and promotion of technology in various fields of use.

Have you participated in forming a company? If so answer the following questions:

Name of company:	Earth Renewable Technologies
Company website (if available):	EarthBottle or Earth Renewable Technologies
Your current role in the company:	I was the chief technical officer
Company stage? (revenue/pre-revenue)	Unknown
Company's current or anticipated products or services	Providing bottles and other packaging made from the resins.
Level of development (i.e. proof of concept, Post launch)	Product in market. Have proof of performance in all applications of where plastics are being used.

Entrepreneurial Profile

Name:	Naren Vyavahare
Title:	Hunter Endowed Chair and Professor
Department:	Bioengineering



In the space provide below, please describe your research expertise and current activity:

My areas of interest are understanding disease pathologies and extracellular matrix degradation that takes place in inflammatory disease processes. We work on restoring lost tissues by site specific therapies.

Describe your entrepreneurial interest and/or experience:

My area of interest is in regenerating elastic networks in the body. Elastin provides elasticity to various organs such as skin, lung, and arteries. As we age elastin levels decrease due to enzymatic degradation and our cells cannot remake lost elastin leading to skin sagging, wrinkles, COPD, and aneurysms. We work on ways to train cells to remake lost elastin.

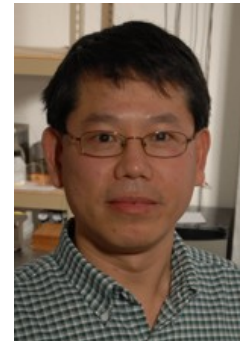
Have you participated in forming a company? If so answer the following questions:

Name of company:	Not yet decided
Company website (if available):	
Your current role in the company:	Want to play active role
Company stage? (revenue/pre-revenue)	Pre-revenue
Company's current or anticipated products or services	Anticipated products will be cream or other formulations to increase skin elasticity
Level of development (i.e. proof of concept, Post launch)	Proof of concept

What are you seeking through networking? (Funding, mentorship, education, other?)

Funding, business partners

Entrepreneurial Profile



Name:	Pingshan Wang
Title:	Associate Professor
Department:	Electrical and Computer Engineering

In the space provide below, please describe your research expertise and current activity:

My research is on developing micro-total-analysis-systems (μ TAS) for label-free detection and analysis of minute biomedical and chemical samples. We have developed unique RF sensors, microfluidic devices, and RF sensing systems. Currently, we are developing portable electron paramagnetic resonance spectrometers, portable full-blood analyzers, and portable radio-frequency imaging systems.

Describe your entrepreneurial interest and/or experience:

I am strongly interested in transferring technology, building networks, and start-up company to develop commercial products.

Are you currently associated with a start-up company? If so answer the following questions:

Name of company:	NA
Company website (if available):	
Your role in the company:	
Company stage? (revenue/pre-revenue)	
Company's current or anticipated products or services	
Level of development (i.e. proof of concept, Post launch)	

What are you seeking through networking? (Funding, mentorship, education, other?)

Mentorship, education and business partners

Any additional comments:

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Entrepreneurial Profile

Name:	Guigen Zhang
Title:	Professor
Department:	Bioengineering



In the space provide below, please describe your research expertise and current activity:
 Biosensors, fluidic devices, biomechanics and biomaterials

Describe your entrepreneurial interest and/or experience:
 Strongly interested in converting inventions into wealth creating innovations and ventures; previous successful experiences in securing SBIR funding; familiar with the federal SBIR/STTR review processes through services on numerous review panels

Have you participated in forming a company? If so answer the following questions:

Name of company:	Tiger Bioanalytics Ltd. Co.
Company website (if available):	Tigerbioanalytics.com
Your current role in the company:	Founder
Company stage? (revenue/pre-revenue)	Early stage
Company's current or anticipated products or services	Biosensors for DNA sequencing and other applications
Level of development (i.e. proof of concept, Post launch)	Proof of concept and beyond

What are you seeking through networking? (Funding, mentorship, education, other?)
 Seeking funding and business associates