

Amal Shah



I am an undergraduate BME major with a focus in electronics and instrumentation. I have six years experience as an Emergency Medical Technician and currently am employed by a

division of Johnson & Johnson Corporation, where I am working on the design and development of medical devices in cardiovascular surgery. I am taking “Biomedical Electronics”, “Medical Instrumentation”, “Pathophysiology of Cardiac Disease” and “Capstone Design Research” this semester. I will be graduating with my Bachelor's degree in May 2003 and plan on pursuing an M.S. in Biomedical Engineering focused on BioMEMS and telemedical robotic surgery.

Scott Iglay



I was formerly a computer engineering major, but I transferred to Biomedical Engineering with a focus in instrumentation and electronics. My past experience working with

Warshauer Electric as a design engineer/inside salesman has given me a taste of what industry is like. Presently, I am employed with a biomedical engineering company assisting with research and development of tools that are used in less invasive forms of surgery for coronary artery bypass, angioplasty, etc. I started in January and will continue my internship throughout the entire summer. I hope to leave a good name for NJIT, so they will continue to recruit students from our BME department!!

Professor Treena Arinze

Receives a National Science Foundation Young Investigator Career Award



The National Science Foundation awarded a grant of \$400,000 to Professor Arinze over a period of five years for her research in “A Systematic Approach in Determining Material Surface Properties that Promote Stem Cell Differentiation.”

Dr. Arinze teaches Biomaterials and Biocompatibility, and Tissue Engineering. She advises students at the undergraduate, masters and doctoral levels.

Professor Hans Chaudhry

is

Awarded a Patent

In November 2001 Dr. Hans Chaudhry, research professor in the Biomedical Engineering Department was awarded a patent for an “Apparatus and Method for Non-Invasive Measurement of Stretch.” John Federici [Physics], Tom Findley [UMDNJ] and Arthur Ritter [UMDNJ] were co-inventors. The apparatus/method allows for the optimal suturing of surgical closures.

Biomedical Engineering

at



The New Jersey Institute of Technology

February 2003 #5

**Bachelors Degree
Masters Degree
Doctoral Degree
in Biomedical Engineering**

**For information,
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the NJIT Admissions Office
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**Visit the Web Site
www.njit.edu/bme**

Rasha Batarseh



Rasha Batarseh will be graduating in May with a B.S. degree in Biomedical Engineering. "I am extremely grateful to the Biomedical Engineering department because it has given me

great opportunities to enter the field of medicine." Rasha has been accepted into New York College of Osteopathic Medicine. "Dr.Kristol made me aware of the various options in medicine. I was given research projects and access to hospital environments. I was part of a surgical observer internship program at St Barnabas Medical Center headed by Dr. Engler, a member of the BME Dept. The internship allowed me to observe a variety of different surgical procedures and also provided me with interaction with various hospital departments." Rasha is now a Clinical Information Manager at SBMC, while still a student at NJIT.

Rasha is a graduate of Passaic Valley High School. She has been a member of the Student Senate, and is currently the president of the Honors College Student Council.

"I have developed lifetime friendships at NJIT. This semester I am taking Pathophysiology of the Heart, Biomedical Instrumentation, Engineering Physiology, and a bowling and archery class. I am also completing my senior project that involves an iontophoretic drug delivery patch with Dr. Michniak.

"I owe my success to NJIT, the Biomedical Engineering Department, the Albert Dorman Honors College, and mostly to my parents."

RECENT PRESENTATION

"Comparison of Predictive and Nonpredictive Eye Movements in the Disparity Vergence System," Prof. Tara Alvarez, at the 3rd Conference on Sensorimotor Control in Men and Machines, Marseilles, France October 2001.

Barbaro and Dinora Perez



Barbaro Perez earned his BS degree in Mechanical Engineering at NJIT in 1991, and returned to NJIT after two years of industrial experience to earn his MS degree in Biomedical Engineering (in 1995). His masters degree thesis involved the development of a totally bioabsorbable composite material, a project involving faculty at both NJIT and NJMS. He also performed research on a realistic animal model for occult articular cartilage failure. While working toward his MS degree he met Dinora Hernandez, who was then an undergraduate student in Engineering Science with a major in Biomedical Engineering. They became engaged. Barbaro entered New Jersey Medical School in 1995 while Dinora continued her studies and earned a M.S. degree in Biomedical Engineering at NJIT in 1997. Her master's degree thesis topic involved electrophysiologic studies of hypothalamic potassium channels, also involving faculty from both NJMS and NJIT. Barbaro and Dinora were married in 1999. Dr. Barbaro Perez is currently an orthopedic resident in Albany, New York. Dinora is currently working for Baxter Pharmaceutical products as Clinical Research Associate. They have a daughter, Khatiana.

RECENT PAPER

"Extraction and Modeling of the Oscillatory Potential: Signal Conditioning to Obtain Minimally Corrupted Oscillatory Potentials." Prof. Andrew Meyer, Documenta Ophthalmologica **104**, 37-55 (2002).

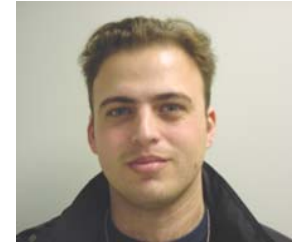
BIOMEDICAL ENGINEERING DEPARTMENT SEMINAR

Samuel C. Lieber

Research Engineer at UMDNJ,
PhD Student at NJIT

Cardiovascular Cell Morphology and Material Properties Measured by Atomic Force Microscopy

The atomic force microscope (AFM) is a high-resolution scanning-probe microscope that can be operated in



physiological solutions surrounding isolated cells or biomaterials. It has proved valuable for imaging the three-dimensional structure of biological materials and measuring their material

properties. Detailed micromechanical properties of soft biological samples can be determined through AFM nanoindentation. Thus, the AFM enables real-time biomechanical and physiological processes to be monitored with nanoscale resolution. We imaged vascular smooth muscle cells (VSMC) with an AFM at NJIT's Keck Laboratory. The apparent elastic moduli of VSMCs and cardiac myocytes were measured. The relationship between indentation force and depth using classical infinitesimal strain theory was analyzed. A change in the morphology and apparent elastic modulus of VSMCs and cardiac myocytes was seen with drug treatment (e.g., Nocodazole applied to VSMCs). Differences were observed between cells from young and old animals.

RECENT PAPER

"Computer-Aided Differential Diagnosis of Breast Cancer and Fibroadenomatosis Based on Malignancy Associated Changes in Buccal Epithelium," Prof. Roman Andrushkiw, Automedica **19**, 135-164 (2001).