the City College of New York

Engineering @ City

Recent Undergraduate Research and Internships

Vol. 1 Spring 2009

Biomedical

Jnane Abdelhamid, research with Dr. Mahmoud Ardebili on computational investigation of dynamic control of separated boundary layer flow; with Dr. Shanti Rywkin to demonstrate concepts in synthetic organics; with Dr. Qiang Wang at University of California's Integrated Micro/Nano REU); to develop Air Force portable device for retinal imaging for military; with Dr. Luis Cardoso to Dr. Luis Cardoso on numerical modeling of ultrasound wave propagaton in chancellous bone; research with Dr. Maron Bikson to design and build an inexpensive, portable electroencephalogram (EEG).

Adrienne Alimasa, biophysics research with Physics Prof. Ronald Koder on creating an artificial P450 with the aid of computational analysis.

Jessica Barcco, research with Dr. Tarbell and PhD student, Limary Cancel, on the effect of statins on endothelial permeability.

Julian Diaz, research with Prof. Marom Bikon on a system for focal cranial electrical stimulation.

Nicole Febles, NeuroEngineering research with Prof. Marom Bikson on prolonged weak electrical stimulation of the brain and long-term cell plasticity.

Juan Carlos Leon Gonzalez, research with Prof. Lucas Parra on brain controlled RC Car.

Johnson Ho, Neural Engineering research with Prof. Dr. Marom Bikson on alleviating the pain and burning sensations related to Transcranial Direct Current Stimulation through the chemical or electrical pre-treatment of skin.

Tanjila Khanam, NeuroEngineering research with Prof. Marom Bikson on prolonged electrical stimulation of the brain and long-term cell plasticity.

Chukwudi Okworogwo, research with Dr. Bingmei Fu to test the effect of temperature on cancer cell uptake of nano-particles loaded with anti-cancer agents.

Paolo Palacio, research with Dr. Susannah Fritton, Ph.D. student Divya Sharma, and collaborators at Memorial Sloan-Kettering Cancer Center to investigate the effects of exercise on enhancing drug delivery to bone tumors.

Rocio Palomino, research with Dr. Tarbell and PhD. student Zhongdong Shi on effects of interstitial flow on vascular smooth muscle cell and fibroblast migration.

Jordan Paredes, research with Prof. Sihong Wang on morphological study of stem cells cultured in peptide hydrogel to analyze osteogenesis stem cells using a co-culture model.

Himanshi Patel, research with Dr. Tarbell and Ph.D. student Henry Qazi on effect of smooth muscle cells on endothelial permeability; and research with Dr. Tarbell and Ph.D. student Rishi Mathura on effect of

smooth muscle cells on endothelial permeability using a co-culture model.

Sidra Piracha, research with Prof. Sihong Wang on construction of monoclonal fluorescence reporter cell lines for the profiling of apoptosis pathways.

Francesco Piraino, visiting undergraduate from Politecnico of Milan, research with Dr. Tarbell and Ph.D. student Limary Cancel on effect of statins on permeability of the endothelial layer.

Wendy Sanchez-Vaynshteyn, research with Dr. Bingmei Fu to determine the permeability of astrocyte monolayer; and summer research with MIRTHE at Princeton University.

Walz, Jennifer, '07 BME graduate received a 2009 NSF award at Columbia University

Edek Williams research with Prof. Adele Boskey and BME PhD Candidate Ericka Calton at Hospital for Special Surgery, including analyses of ovine cancellous vertebral cores.

Jingwei Zhang, research with Prof. Sihong Wang on thermal regulation of the osteogenic differentiation.

Chemical

Kelechi Aseme, research with Prof. Ilona Kretzschmar on porous polymer materials for cell scaffolding.

Charlie Corredor, research with Dr. John R. Lombardi in the Center for Analysis of Structures and Interfaces (CASI), in applying Surface Enhance Raman Spectroscopy (SERS) to identify pigments in art work with collaboration of the Metropolitan Museum of Art (The Met) in NYC; and with NYPD crime lab to identify inks and dyes by SERS; at Jilin University in China at the Key Laboratory of Supramolecular Structure and Material in Nanotechnology on photo-induced Quantum Dots; and at the Royal Institute of Technology, Stockholm, Sweden.

Marta Dulko, research with Prof. Ilona Kretzschmar on electrochemical characterization of dye-sensitized solar cells.

Amara Emenuo, Comp E/EE, research with Prof. Ilona Kretzschmar on preparation of so-called "patchy particles, particles with multiple anchoring patches.

Julius Edson, research with Prof. Ilona Kretzschmar on characterization of organic linker molecules using infrared spectroscopy.

Francisco Guzman, research with Prof. Ilona Kretzschmar on developing a Dynamic Tactile Tablet to serve as a Braille system that changes in real time.

Sohyun Han, research with Prof. Ilona Kretzschmar on developing an electroactive polymer film for a dynamic tactile tablet.

Roseline Idoko, research with stipend and German language study, with PhD student, Andreas Harwardt at Aachener Verfahrenstechnik Chemical Engineering Institute at Aachen University in Germany, on optimal distillation sequencing to create algorithms and increase the efficiency of distillation sequences and lower costs.

Lillian Lam, research with Prof. Raymond Tu on the formation of layer-by-layer assemblies for energy applications.

Tommy Lam and Atin Saha ,BME, research with Prof. Raymond Tu on dynamic peptide assembly for DNA detection and gene delivery.

Yuliana Leon, research and 10-week paid internship, including housing and mentor, at New Jersey Institute of Technology's NJIT

REU program on sustainable and clean energy sources, and focused on catalytic studies for hydrogen production from biomass via ethanol to achieve a renewable and clean method for converting chemical energy into electrical energy.

Stephen Ma, research with Prof. Ilona Kretzschmar on preparing porous TiO2 electrodes for application in dye-sensitized solar cells.

Jude Phillip, research with Chemistry Prof. David Gosser on electrochemical analysis of organic compounds; with Prof. Couzis on the synthesis of particles for optical labeling; and summer research in Dr Richard Zare's lab at Stanford University on encapsulated nanoparticles for sustained release of drug molecules.

Romuald Pinheiro, research with Prof. Lane Gilchrist on the construction and imaging of biomimetic structures composed of microtubule cytoskeletal proteins and nanoporous alumina.

Nikita Ponochovnyy, research with Prof. Alexander Couzis on GlaxoSmithKline's toothpaste project requiring use of a Contact Angle Goniometer, and focused on improving a denture cleaning product to protect from odor-producing proteins and bacteria.

Vincent Tatesure, research with Prof. Raymond Tu on polymerization processes from the hydrate phase.

Civil

Eugne Asa-Ntow, research in the Soil Mechanics Lab with Prof. Huabei Liu on anistropic strength of sandy soil using direct-shear testing device.

Michael Bonetti
Civil Engineering

Michael Bonetti, interned with Hunter Roberts Construction Group summer 2008, on the Hudson-Greene project in Jersey City, NJ, a dual 48-story residential superstructure.

Diniece Peters**,** research with Prof. Anil Agrawal to assist in developing a software framework to model the simulations of smart- structural systems relating to movements of structures when subject to external forces such as earthquakes or wind loads.

Anthony Vasile, research with Prof. Huabei Liu on developing a method to evaluate the horizontal deformation of Geosynthetic Reinforced Soil (GRS) retaining walls, to evaluate their serviceability and cost-effectiveness compared to traditional retaining walls.

Computer

Ezenwa Anyanwu, research with Prof. David Crouse's Semiconductor lab on template fabrication and anodization, electrochemistry, and impedance measurement.

David Daniel, summer internship at AIG's Department of Finance in NYC, to automate auditors recommendations for subsidiaries; internship at MTA's Technology & Information Services in NYC, developing a system which digitizes the purchase orders process.

Chetram Dasrat, research with Professor Jianting Zhang on collecting and analyzing geographic data through the use of computers to prevent future global warming and climate issues.

Mohammad Islam, research to build a Differential Drive Robot Platform, using a linear InfraRed Sensor, and CMOS/CCD camera.

Akshai Sarma, robotics research with Prof. Jizhong Xiao, EE, on Visual Simultaneous localization and Mapping (vSLAM) using a Scorpion Robot.

Earth System Science

Ankur Agarwala and Moran Dagan, EE, research with Tony Dinardo at Northrop Grumman and Prof. Fred Moshary on MIR Earth Surveillance.

Amandeep Chabbra, EE and Reuven Huntley, EE, research in Prof. Fred Moshary's lab with Dr. Paul Corrigran on an open-path quantum cascade laser system for the real-time environmental monitoring of trace gases (Ammonia and Ozone) to evaluate the level of emissions.

Lina Cordero, Comp, now CCNY PhD, research in Prof. Moshary's lab with Dr. Yunghua Wu on atmospheric remote sensing.

Erika Garofalo, EE, now CCNY MS, research with Prof. Moshary on multi-wavelength lidar cloud studies.

Emanuel Hereira, EE, research in Prof. Moshary's lab with Dr. Ben Herman on Atmospheric Lidar.

Fausto Hernandez, EE, research in Prof. Moshary's lab with Dr. Mark Arend on NYC Atmospheric Monitoring Network.

George Kurien, summer internship with Prof. Moshary.

Lin Lin, research with Prof. Alex Gilerson, on remote sensing of coastal waters.

Lian Nu, EE, and Rupert Wilmot-Dunbar, EE, research in Prof. Moshary's lab with Dr. Mark Arend on the Wind Lidar/Wind Monitoring Network.

Ibrahim Siddo, EE, research with Prof Fred Moshary on quantum cascade laser sensors; and Summer REU at Howard University.

Alex Tejada, EE, research in Prof. Moshary's lab with Dr. Ben Herman on Atmospheric Lidar.

Lital Yinon, research with Prof Beth Wittig on air quality studies in NYC.

Electrical

Taha Abdullah, research with Prof. Maria Tamargo on II-VI semiconductor Structures for quantum cascade lasers.

Yahao Chen, research with Professor Umit Uyar's group to implement bio-inspired computation methods (e.g., genetic algorithms) for uniform distribution of mobile agents over an unknown geographical terrain, used for search and rescue operations and clean-water pollution measurement tasks.

Nazmi Chowdhury, research with Professor Umit Uyar's group to investigate the theoretical boundaries for genetic algorithms, and implement a testbed using CCNY student volunteers.

Julian Diaz Gutierrez, research with Prof Barry Gross on satellite remote sensing of surface Albedo.

Rushane Dyer, summer NASA internship at Goddard Space Flight Center in Greenbelt, MD in the Laser Remote Sensing Branch, to control the pulse of a laser altimeter, and measure the height of a plane in motion above the Earth's surface; research with Prof. Sam Ahmed on optical properties of ocean and coastal water.

Sara Elzeftawy, research with Prof Alex Gilerson on coastal waters remote sensing.

Faisal Halim, summer internship at Corning on design and fabrication of organic light emitting diodes.

Takako Iijima, research with Prof Sam Ahmed on imaging and data analysis of ocean waters.

Paramjit Kaur, BME, summer internship at Merck in West Point, PA supporting process development for the multivalent V114 vaccine program in preclinical development.

Zhao Kualie and Weiming Zheng, now CCNY Master's, research with Prof Sam Ahmed on ocean color remote sensing.

Nicole Mutesi, research with Prof. Roger Dorsinville on efficient photovoltaic devices using polymer/single-wall carbon nanotubes composites.

Lian Niu, research with Professor Sang Woo Seo on fluidic assisted self assembly of micro devices to eliminate the current inefficient pick-and-place method, and enable parallel self assemble on a massive scale.

Eric Sanchez, materials science research at Princeton University on micro-lenses fabrication by solvent-casting of Chalcogenide Glass.

Francis Smith, research with Prof. Roger Dorsinville and Prof. Ardie Walser on nonlinear optical characterization of semiconductor/polymer composite nanostructures.

Peter Alabi Taiwo, research on a fully autonomous unmanned ground robotic vehicle which navigates around an outdoor obstacle course under a prescribed time, and avoiding obstacles on a track course, using lasers, sonars, gps etc.; and currently working on the robot's suspension and power distribution system.

Fidaali Udawala, research with Prof. Sang Woo Seo on analyzing fluid flow under a microchip using COMSOL Multiphysics software.

Yuventi, Jumie, 2008 graduate received a 2009 NSF at California-Berkeley

Rupert Wilmot-Dunbar, Jr. research with Prof. Sang Woo Seo on design of a linear optical filter that reads the Raman Scattered Light from a target material; summer internship at Lockheed Martin in developing an automated system diagnosis procedure that is both time and cost efficient..

Mechanical

Israel Adejoro and Matthew Amy, research with Prof. Jackie Li on experimental investigation on electro mechanical coupling behavior of carbon nanotube/piezoelectric composites for possible energy harvesting.

Amirhossein Daneshyazdi, research with Prof. Latif Jiji to determine effectiveness of a two-fluid system in cooling micro-turbines, micro-engines and micro-shafts, obtaining the temperature distribution and the Nusselt number in both fluids.

Locke Fung and Andres Reinosa, research with Prof. Ben Liaw and Prof. Jackie Li to simulate the land mine impacts on military vehicles.

Martin Nolan, research in the manufacture of micro-channels for cell research, and cell migration studies using two types of micron cross-section; and research with Prof. Maribel Vasquez on utilizing microfluidic channels to examine the invasion of brain cancer cells within collagen.

Anthony Pang, research with Professor Xiao, EE, on autonomous window maintenance robots and utilization of shape memory alloys for human hand simulation; also with Professor West and the Students

for Alternative Sources of Energy (SASE) on Jatropha oil as a viable biodiesel fuel source.

Charles Sosa, research apprentice with Distinguished Prof. Dr. William Rossow in the NOAA CREST program.

Computer Science

Andrew Hernandez, research with Prof. Izidor Gertner on secure cloud computing.

Tadeusz Jordan, research as a CUNY Pipeline undergrad scholar with Prof. Zhigang Zhu on computer vision and image processing on western paintings.

Wai Khoo research with Prof. Zhigang Zhu, on 3D estimation and visualization for gamma-ray cargo inspection.

Other Multidisciplinary Projects

The Chem-E-Car Competition, building a shoebox-sized car for the National AIChE Conference.

Tence George, CompE, Peter Alabi Taiwo, EE, Paul Kehinde Alabi, CompE, research on a new lossless compression algorithm developed for NOAA-NESDIS satellites, capturing spectral correlations using spectral prediction and spatial correlation with a linear transform encorder.

SASE research to devise a sustainable energy solution by providing an alternative to diesel using vegetable oil in diesel engines.