NASA HBCU/MSI TECHNOLOGY INFUSION ROAD TOUR @ UTEP

(April 19, 2016)

Mohamed Trabia, Associate Dean of Research, College of Engineering
Rama Venkat, Dean of Engineering
Thomas Piechota, Vice President of Research & Economic Development

University of Nevada, Las Vegas (UNLV)
University of Nevada, Las Vegas

- An American public research university located in the Las Vegas suburb of Paradise, Nevada.
- The 332-acre campus is located approximately 1.6-mile east of the Las Vegas Strip.
- Noted for its strong emphasis on science and technology, business management, and the law programs, the university is classified a "research-intensive university" by the Carnegie Foundation for the Advancement of Teaching.
- Students in 2014
  - Total 28,515
    - Undergraduate 23,813; Postgraduate 4,010; and Doctoral students 715
- Athletics: NCAA Division I – Mountain West
University of Nevada, Las Vegas

- Established in 1957...

1959

1980

UNLV Now
State-of-the Art Facilities at UNLV

The Science and Engineering Building (SEB) is a state-of-the-art facility designed for interdisciplinary research and education.

The Lied Library (LLB) has the capacity to store 1.8 million volumes and occupies 300,000 square feet in five stories. It has 2,500 study spaces, more than half of them with full network connections.
UNLV is a doctoral-degree-granting institution of approximately 29,000 students and more than 3,000 faculty and staff.

UNLV offers about 220 programs of study in varying fields leading to bachelor's, master's, and doctoral degrees.

UNLV is accredited by the Northwest Commission on Colleges and Universities (NWCCU).

UNLV Ranked Second Most Diverse Campus in the Nation

UNLV jumps from sixth to second place on U.S. News & World Report's annual list for "best ethnic diversity," maintaining a spot in top 10 for fifth consecutive year.

Media Contact: Keyonna Summers (702) 895-3102; keyonna.summers@unlv.edu
Academics

School of Allied Health Sciences

The School of Allied Health Sciences prepares students for entry-level health-related positions and further graduate or professional studies with classroom instruction, laboratory/clinical practice, research, and mentoring.

Departments
- Department of Health Physics and Diagnostic Sciences
- Department of Kinesiology and Nutrition Sciences
- Department of Physical Therapy

Degree Programs
- Allied Health Sciences Degrees

Lee Business School

The Lee Business School advances the knowledge and practice of business, develops business leaders, and fosters intellectual and economic vitality through the creation and dissemination of knowledge and outreach.

Departments
- Department of Accounting
- Department of Economics
- Department of Finance
- Department of Management, Entrepreneurship, and Technology
- Department of Marketing and International Business
- MBA Programs

Degree Programs
- Business Degrees
School of Community Health Science

School of Community Health Sciences »

The School of Community Health Sciences is dedicated to improving the health and well-being of people worldwide. Our departments, programs, and research units work to provide a diverse education, practical training experience, and numerous community involvement opportunities to prepare students to become leaders and professionals in the field of public health.

Departments

- Department of Environmental and Occupational Health
- Department of Health Care Administration and Policy

Degree Programs

- Community Health Sciences Degrees

School of Dental Medicine

School of Dental Medicine »

The School of Dental Medicine provides world-class oral health education while providing for the dental needs of Nevada residents.

Degree Programs

- Dental Medicine Degrees

Advising

- Pre-Doctoral Student Advising
College of Education

The College of Education creates an intellectual environment that promotes quality instruction, significant research, and professional service.

Departments
- Department of Educational & Clinical Studies
- Department of Educational Psychology & Higher Education
- Department of Teaching & Learning

Degree Programs
- Education Degrees

Howard R. Hughes College of Engineering

The College of Engineering provides students a solid foundation in several engineering disciplines for a successful career in engineering and computer science.

Departments
- Aerospace Studies/Air Force ROTC Program
- Department of Civil and Environmental Engineering and Construction
- Department of Computer Science
- Construction Management Program
- Department of Electrical and Computer Engineering
- Entertainment Engineering and Design Program
- Department of Mechanical Engineering
- Department of Military Science/Amy ROTC

Degree Programs
- Engineering Degrees
College of Liberal Arts

The College of Liberal Arts offers students a well-rounded education in the humanities and social sciences, and provides students with a solid foundation for a lifetime of learning and discovery.

 Departments

- Department of Anthropology
- Department of English
- Department of History
- Interdisciplinary Degree Programs
- Department of Philosophy
- Department of Political Science
- Department of Psychology
- Department of Sociology
- Department of World Languages and Cultures

 Degree Programs

- Liberal Arts Degrees

School of Nursing

The School of Nursing educates nurses at the undergraduate and graduate levels to meet health care needs in Nevada and beyond. The School of Nursing promotes, improves, and sustains human health through evidence-based education and advances in research and practice.

 Degree Programs

- Nursing Degrees

 Advising

- Health Sciences Advising Center
College of Science

The College of Sciences provides students a solid foundation in natural, physical, and mathematical sciences for a successful career in the sciences and other professional programs.

Departments
- Department of Chemistry and Biochemistry
- Department of Geoscience
- School of Life Sciences
- Department of Mathematical Sciences
- Department of Physics and Astronomy
- Water Resources Management Program

Degree Programs
- Sciences Degrees

Greenspun College of Urban Affairs

The Greenspun College of Urban Affairs emphasizes improvement in the quality of urban life by preparing undergraduate students for professional practice in a variety of fields. Graduate programs advance the body of knowledge of its disciplines, and the improvement of public policy and professional practices.

Departments
- Department of Communication Studies
- Department of Criminal Justice
- School of Environmental and Public Affairs
- Hank Greenspun School of Journalism and Media Studies
- Marriage and Family Therapy Program
- School of Social Work

Degree Programs
- Urban Affairs Degrees

For more information: https://www.unlv.edu/academics
Programs and Degrees of Howard R. Hughes College of Engineering

Aerospace Engineering
  Master of Science

Biomedical Engineering
  Master of Science

Civil Engineering
  Bachelor of Science
  Master of Science
  Doctor of Philosophy

Computer Science
  Bachelor of Arts
  Bachelor of Science
  Master of Science
  Doctor of Philosophy

Computer Engineering
  Bachelor of Science

Entertainment Engineering and Design
  Bachelor of Science EED
  Bachelor of Science ETD

2016
U.S. News Best Grad School Rankings

#87
Civil Engineering

RNP
Computer Engineering

#139
Electrical / Electronic / Communications Engineering

RNP
Environmental / Environmental Health Engineering

#109
Mechanical Engineering
(Minor) Programs and Degrees of
Howard R. Hughes College of Engineering

Computer Science
  Minor in Computer Science
  Minor in Information Technology

Military Science/Army
  Minor in Military Science

Aerospace Studies & ROTC
  Minor in Aerospace Studies

Unmanned Aircraft Systems
  Minor in Unmanned Aircraft Systems

Solar and Renewable Energy
  Minor in Solar and Renewable Energy
  Graduate Certificate in Solar and Renewable Energy

Tech Commercialization
  Minor in Technology Commercialization

Entertainment Engineering and Design (EED)
  Minor in EED

Student-Centered Engineering Experience

2013 Solar Decathlon

Back in the Sun: UNLV Chosen to Compete in 2017 Solar Decathlon
UNLV Past Performance: Grants & Contracts and Subcontracts

UNLV College of Engineering Research Expenditures in $M (~$100-150K/Faculty)
The Howard R. Hughes College of Engineering focuses on creating key technologies that serve the United States, and the world. Our goal is to expand knowledge and provide benefits to society.

While our faculty pursue innovative solutions to many challenges, they are particularly focused on the following research areas and have established a strong national and international presence:

- Big Data
- Biomedical Engineering
- Environmental Engineering and Water Resources
- Materials
- National Security Engineering
- Renewable Energy
- Robotics/Unmanned Aerial Systems
- Transportation
- Unmanned Aerial Systems
NASA Relevant UNLV/Engineering Past Performance

- NASA's Marshall Center to Host Mentor-Protégé Program
  - UNLV - as part of the NASA Mentor-Protege program with Teledyne Brown Engineering - is developing state-of-the-art e-learning materials for various NASA personnel training courses.

- UNLV is part of Nevada NASA Space Grant Consortium (established in 1991).

- UNLV has a few NASA EPSCoR research grants awarded.
Engineering Research (Recent Activities): DARPA Robotics Challenge

Team DRC-Hubo@UNLV is an international and multicultural group of researchers, professional partners, and students, both graduate and undergraduate. Each team member specializes in a specific area, such as robot hardware, software, networking and communications. This allows each person to bring their personal expertise to enhance the project.

Congratulations to the DRC-Hubo@UNLV Team for their 8th Place Finish!

http://www.drc-hubo.com/

Pl: Paul Oh
UNLV-led research team has received a $3.8 million grant from the National Science Foundation to create advanced artificial muscles for use in soft robotics that could one day help millions of people with disabilities--Partnerships for International Research and Education” (PIRE) program.

PIs: Kwang Kim and Paul Oh
Relevant UNLV Eng. College Past Performance
(Contracts/Subcontracts, last 2 years only)

**Robotics/Computer**
- DRC-Hubo-Leveraging a 7-Hubo Infrastructure and Unified Algorithmic Framework for the DARPA Robotics Challenge, DARPA
- US-Korea Collaborative Software and Hardware - Design of Humanoids for Real-World Tasks in Human-Centered Environments, NSF
- Infrastructure for Enabling Mobile Manipulation Unmanned Aerial Vehicle (MM_UAV) Research and Design, NSF
- Human-Robot Coordinated Manipulation and Transportation of Large Objects, NSF
- Artificial Muscle (AM) Cilia Array for Underwater Systems, ONR
- Electroactive Sensors for Naval Applications, ONR
- Advanced Artificial Muscles for International and Globally Competitive Research and Education in Soft Robotics, NSF
- Unmanned Aerial Vehicle (UAV) Research in Support of Counter Poaching Efforts as a Deterrent to Combatting Illicit Trafficking, Naval Air Warfare Center
- Enhanced Situational Awareness Using Unmanned Autonomous Systems for Disaster Remediation, NSF
- Development of Plug-and-play Interchangeable Components for Unmanned Aerial System with Mobile Manipulation Capability, DOE/SRNS
- Tracking Object Parts and Learning Interactions Rules, NRL

**Energy**
- Thermal Dynamics and Neutronics Modeling Simulations on RTMSR Reactor Design, Utah Green Energy Technologies
- The Solar Energy-Water-Environment Nexus, NSF
- Advanced Transport Technologies for NASA Thermal Management/Control Systems, NASA
Relevant UNLV Eng. College Past Performance
(Contracts/Subcontracts, last 2 years only....)

Materials
- Additive Manufacturing (AM) Workshop, NASA EPSCoR
- Experimental Characterization and Computational Simulation of Shock Propagation and Failure Mechanisms in Complex Materials, NSTec
- The Development of N-Type Hybrid Thermoelectric Materials with High Performance, Hyundai
- Super-Hydrophobic Surface Enabled Microfluidic Energy Conversion, NSF

Electronics
- Photodetectors and High-Speed Electronics Using Silicon Germanium (SiGe) Bipolar/CMOS (BiCMOS) Integrated Circuits, NSTec
- Advanced Printed Circuit Board Design Methods for Compact Optical Transceiver, Attollo Engineering
- Quantum Cryptography Single Photon Detector Chip, Freedom Photonics

Environmental
- Chromium Contamination Remediation Using Activated Carbon Coated with Polysulfide Rubber and Zeolites Coated with Surfactants, Savannah River Nuclear Solutions

Educational Services
- Lego Robotics for the Blind and Visually Impaired, Pacific Foundation for the Blind
Campus-wide Activity Example #1:
UNLV-Switch-Intel Partnership

- Switch high speed connection (unlimited bandwidth)
- Data center with 1000 private sector customers
- Intel Cherry Creek Supercomputer (41st on Green List and 400th fastest)
- Puts UNLV in top 5 of Tier 1 universities with High Performance Computing
- Example research – genetic data for personalized medicine
Campus-wide Activity Example #2: NSF Solar Energy-Water-Environment Nexus

- Research to Explore Solar Energy, Water, and Environmental Issues
  - Dr. Bob Boehm, Distinguished Professor
  - Dr. Jaci Batista, Professor
Campus-wide Activity Example #3: Nevada Institute of Personalized Medicine

- Nevada Institute of Personalized Medicine
- Dr. Martin Schiller, Executive Director
Campus-wide Activity Example #4: Tesla Motors Research Program

- Research on material reprocessing
- Water and wastewater
- Batteries
### Howard R. Hughes College of Engineering

#### Contact(s) Points of Contact

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https://youtu.be/AEAA4DjqzXA

Thanks for your attention!