Chester F. Carlson
Center for Imaging Science

Chester F. Carlson, inventor of Xerography
What is Imaging Science?

How does a cell phone take color pictures? How does the picture get processed so you can upload it to Facebook quickly? How does Facebook identify actual faces and ask you to tag them?
What actually is an MRI? How does the machine create those 3D looking images? How can we process the images so doctors can more easily make diagnoses?
What is Imaging Science?

Those satellite images on Google Maps are collected by a camera (built in Rochester!) moving thousands of miles per hour. How does it take a picture that’s not blurry? How do we process that image to provide information for environmental science studies?

Imaging Science
The Carlson Center for Imaging Science

• Formed in the 1980’s as the imaging world moved into the digital realm

• Basis was in the RIT College of Imaging Arts and Sciences – the photography school

• Originally developed as a research organization, started offering degrees in the early 1990’s

• Only degree program of its kind in the world
  – BS, MS, & Ph.D. degrees in Imaging Science
Imaging Science Academic Program

• 17 Core faculty with primary appointment in CIS
  – 25 + Program Affiliated Faculty across the RIT campus

• Degree Programs Offered
  – BS / MS / Ph.D. in Imaging Science - only program of its kind
  – MS / Ph.D. in Astronomical Sciences and Technology
  – Joint BS with Motion Picture Science

• Total student population > 150
  – 115 graduate
  – 45 undergraduate

Over 10 Academic Disciplines Represented by the Core Faculty!
The Imaging Chain – How We Define Imaging Science

The chain of events that lead to collection and analysis of imagery to solve problems. This concept drives our curriculum and research programs.
Imaging Science Research Program

• Over 20 full time research staff at all levels

• Approximately $5-7M in annual research expenditures

• Major Research Laboratories focused on:
  • Remote Sensing
  • Human Visual System
  • Multi-wavelength Astronomy

• Other research on:
  • Computer/Machine Vision
  • Cultural Heritage Imaging
  • Optics & Photonics

Octo-rotor UAV with a multispectral camera used for precision agriculture studies
Example Employment after Graduation

• Students go on to work for companies working with imaging systems in many different fields!
  – With essentially a 100% placement rate!

• Aerospace
  – Lockheed Martin, Boeing, MITRE, The Aerospace Corporation, Harris

• Commercial Electronics
  – Apple, Aptina, Microsoft, Motorola, Canon, Xerox, GoPro

• Government Laboratories
  – Naval Research Lab, Los Alamos National Lab, Livermore National Lab, Sandia National Lab, MIT Lincoln Laboratory, NASA Goddard, etc.
Chester F. Carlson Center for Imaging Science

• An interdisciplinary academic unit at RIT in the College of Science focused on:
  – Novel image capture and display systems
  – New ways to process imagery and image-derived data
  – New applications that use imaging to solve real-world problems

• With an emphasis on *experiential learning for students* from high school summer interns through Ph.D. candidates!

Currently Seeking Applicants for *funded positions* in our MS & Ph.D. Programs

http://www.cis.rit.edu
Questions?

LIDAR image of RIT campus after voxel processing for advanced analysis. Produced by CIS alumni Shea Hagstrom, Ph.D.