MISSION STATEMENT
The primary mission of the Imaging Technology Group (ITG) is to provide Beckman researchers with state-of-the-art imaging facilities in the Microscopy Suite and the Visualization, Media and Imaging Lab. A secondary focus of the group is to develop advanced imaging technologies, primarily in the area of microscope control and automation.
HIGHLIGHTS

STAFF

Karl Garsha joined the ITG in September as a Specialist in Light Microscopy. Karl comes to us from after finishing his M.S. in Biology at the University of Wisconsin-Milwaukee. At UWM, he was very active in a variety of activities, and brings to us a healthy background in biological specimen preparation and immunohistochemical staining for conventional light, fluorescence, confocal and multiphoton microscopies.

Alex Lazarevich, formerly an academic hourly doing programming for the Bugscope ITR project, joined the group as a systems administrator. Alex is responsible for maintaining the variety of computer systems in use within the Imaging Technology Group.

Daniel Weber, a long-time staff member of our group, has resumed limited consulting hours in the VMIL--on Tuesday afternoons and on Thursdays. His areas of expertise include AnalyzeAVW, the Cyberscanner, several graphics applications, programming and scripting for data transformation, and the usual odds and ends in the VMIL.

Former Co-Directors, Bridget Carragher and Clint Potter, accepted positions at the Scripps Research Institute in San Diego, California. Group members Benjamin Grosser (formerly Manager of the Visualization, Media and Imaging Laboratory) and Glenn Fried (formerly Scanning Probe Microscope Manager) were promoted to Co-Director.

We have added four new student staff members to our group this year; Anni Hsia, working in the VMIL; Christian Suloway, working on programming projects. David Stolarsky, working on the Bugscope project and Toyin Olagunju, working in the Microscopy Suite Wet Lab.

EQUIPMENT

VMIL

WORKSTATIONS

- INTERGRAPH VX10e WORKSTATION

- MACINTOSH DUAL PROCESSOR WORKSTATION UPGRADES
- VARIOUS DUAL PROCESSOR NT WORKSTATION UPGRADES

IMAGING

- LIGHTSCRIBE 3D SCANNER
- EPSON EXPRESSION 1680 PROFESSIONAL FIREWIRE SCANNER

AUDIO/VIDEO

- SONIC DVD AUTHORING SYSTEM
- NIKON COOLPIX 995 DIGITAL CAMERA
- CANON G1 DIGITAL CAMERA
- FINAL CUT PRO VIDEO EDITING SYSTEM
- NEW VIDEO FORMATS SUPPORTED: DVDPRO, DVCAM, MINDV, DVD

MICROSCOPY SUITE

AFM

- A NEW COMPUTER WITH WINDOWS NT AND THE LATEST AFM SOFTWARE HAS BEEN INSTALLED.

CARBON EVAPORATOR

- TWO NEW TRANSFORMERS, ONE OPERATING AT 12V 90A AND THE OTHER AT 24V 45A, HAVE BEEN INSTALLED ON THE CARBON EVAPORATOR.

LEICA CONFOCAL

- A NEW LEICA SP2 INVERTED CONFOCAL MICROSCOPE WITH SPECTRA PHYSICS MILLENNIA XS/TUSAMI FS LASER HAS BEEN PURCHASED AND WAS INSTALLED IN FEBRUARY 2001.
LEICA CONFOCAL CONT.
- The Leica SP-2 confocal and multiphoton microscope has a new UV fiber optic, and its software has been upgraded to the newest build (V4.585).

DARKROOM
- 2 new Edwards vacuum pumps with integral anti-suckback valves have been placed on the film desiccators in the developing darkroom.

ESEM
- A new Robinson Series 6 backscattered electron detector (BSED) has been installed.

FLUORESCENCE
- A new Coolscan FX camera has been added to the fluorescence microscope.

REFLECTED LIGHT MICROSCOPE
- The microscopy suite has added a Zeiss Axiovert 135 inverted research microscope equipped with incident halogen lamp illumination and reflected light optics for visible spectrum CCD image capture and image feature measurement.

STEREOLOGY
- The stereo dissecting microscope is now equipped with a Kodak MDS290 for image capture.

TEM
- A new TVIPS 2K x 2K CCD camera has been installed on the TEM.

WORKSHOPS
The Beckman Institute hosted the spring 2001 meeting of the Central States Microscopy and Microanalysis Society on May 4, 2001. Talks were given by staff members: Ben Grosser, Glenn Fried and Scott Robinson. Tours of the ITG facilities were conducted for the conference.
JANUARY 18, 2001
“An Overview of the Microscopy Suite”
Bridget Carragher, Director, Imaging Technology Group, Beckman Institute, UIUC

JANUARY 25, 2001
“Oriented growth of carbon nanotubes for SPM”
Lolita Rotkina, Beckman Fellow, Beckman Institute, UIUC

FEBRUARY 8, 2001
“Using the VMIL’s DVD System: Authoring a DVD Video Title & Archiving Data on a DVD”
Ben Grosser, Manager, Visualization, Media and Imaging Laboratory, Imaging Technology Group, Beckman Institute, UIUC

FEBRUARY 15, 2001
“Optical Coherence Tomography of Developing Biological Structure and Function”
Dr. Stephen Boppart, Professor, Department of Electrical and Computer Engineering, UIUC

FEBRUARY 22, 2001
“Prints and Process: A Creative Discovery”
Lawrence J. Hamlin, Fine Arts and Sole Proprietor, Mad Dog Press, Urbana, IL

MARCH 1, 2001
“No Forum This Week”

MARCH 8, 2001
“3D Face Modeling Using the Cyberscanner”
Zhen Wen, Graduate Research Assistant, Image Formation and Processing Group, Beckman Institute, UIUC

MARCH 15, 2001
“Scientific Data Integration and NCSA’s Emerge Project”
Joe Futrelle, Sr. Research Programmer, National Center for Supercomputing Applications, UIUC

MARCH 29, 2001
“3D Reconstruction from Transmission Electron Micrographs”
Aaron Grossman, Graduate Research Assistant and Bahar Mallah, Laboratory Technician, NPA Group, Beckman Institute, UIUC

APRIL 5, 2001
“Using an SEM to Statically and Dynamically Investigate the Chemical Quartering of a Piezo Tube”
Matthew Sztelle, Graduate Research Assistant, Scanning Tunneling Microscopy Group, Beckman Institute, UIUC

APRIL 12, 2001
“Introduction to the Microscopy Suite’s New MultiPhoton Confocal Microscope”
Glenn Fried, Scope Manager, Imaging Technology Group, NCSA

APRIL 19, 2001
“Are You Doing Human Subject Research? ”
Janet H. Glaser, Associate Vice Chancellor for Research and Executive Secretary, IRB, UIUC

APRIL 26, 2001
“No Forum This Week”

MAY 3, 2001
“Morphometry of the Central Nervous System System of the Ataxic Berlin Druckrey IV Rat Using StereoInvestigator Software”
Cheryl Guyer, Visiting Clinical Assistant Professor, Department of Veterinary Pathobiology, UIUC

MAY 10, 2001
“The Beckman CUBE – Virtual Reality for the 21st Century”
Hank Kaczmarski, Director, Integrated Systems Laboratory, Beckman Institute, UIUC

MAY 17, 2001
“From Concept to Proto-type to Market: The Challenge of Technology Commercialization ”
Larry Markoski, Research Specialist, Advanced Chemical Systems Group, Beckman Institute, UIUC

MAY 24, 2001
“Information Technology for Outreach Projects and the Bugscope Project”
Alexander Lazarevich, Systems Administrator, Imaging Technology Group, Beckman Institute, UIUC
MAY 31, 2001
“A Quick Overview of the LightScribe 3-Dimensional Scanner”
Jo Wozniak, Research Programmer, Imaging Technology Group, Beckman Institute, UIUC

JUNE 7, 2001
“Constructing Omnicam and Multisensor Cameras”
John M. Hart, Research Engineer, Computer Vision and Robotics Laboratory, Beckman Institute, UIUC

JUNE 14, 2001
“Autonomic Healing of Polymer Composites”
Scott White, Associate Professor, Aeronautical and Astronautical Engineering, UIUC

JUNE 21, 2001
“Automation for Cryo-TEM From Specimen Grid to 3D Map”
Bridget Carragher, Director, Imaging Technology Group, Beckman Institute, UIUC

JUNE 28, 2001
“Atomic Force Microscopy as a Tool for the Investigation of Cellular Cytoplasmic Membrane Dynamics”
Stanislav Rubakhin, Postdoctoral Research Associate, Neuronal Pattern Analysis Group, Beckman Institute, UIUC
Glenn Fried, Scope Manager, Imaging Technology Group, Beckman Institute, UIUC

JULY 5, 2001
“Automated Identification of Filaments in Cryo Electron Micrographs”
Yuanxin Zhu, Postdoctoral Research Associate, Imaging Technology Group, Beckman Institute, UIUC

JULY 12, 2001
“Characterization of Hydrogel Surface Modifications with LSCM”
Mary Kraft, Graduate Research Assistant, Advanced Chemical Systems Group, Beckman Institute, UIUC

JULY 19, 2001
“Feasibility of Robotic Automation in Cryo-TEM”
Christian Suloway, Undergraduate Student, Imaging Technology Group, Beckman Institute, UIUC

JULY 26, 2001
“Visualizing the Cosmos: Smoke, Mirrors and Big Disk”
Donna Cox, Professor, School of Art and Design and National Center for Supercomputing Applications, UIUC

AUGUST 23, 2001
“Using the Backscattered Electron Detector on the ESEM”
Charles Conway, Bugscope Project, Imaging Technology Group, Beckman Institute, UIUC

AUGUST 30, 2001
“SIGGRAPH 2001 Electronic Theatre Presentation”
Daniel Weber, Sr. Research Programmer and Jo Wozniak, Research Programmer, Imaging Technology Group, Beckman Institute, UIUC

SEPTEMBER 6, 2001
“Integration of Three-Dimensional Microdevices With Gateable Nanoporous Interconnects for Microfluidic Control and Its Applications”
T.-C. Kuo, Postdoctoral Research Associate, Advanced Chemical Systems Group and Neuronal Pattern Analysis Group, Beckman Institute, UIUC

SEPTEMBER 13, 2001
“Overview of the Visualization, Media and Imaging Laboratory”
Benjamin Grosser, Director, Imaging Technology Group, Beckman Institute, UIUC

SEPTEMBER 20, 2001
“An Abstract Approach to Sound”
Dr. Sever Tipei, Professor, Music in the Composition-Theory Division, School of Music and Manager of the Computer Music Project of the UIUC Experimental Music Studios
SEPTEMBER 27, 2001
“New Digital Cameras in the VMIL: A Brief Comparison”
Jo Wozniak, Research Programmer, Imaging Technology Group, Beckman Institute, UIUC

OCTOBER 4, 2001
“Multi-photon Polymerization of Waveguide Structures Within 3D-Photonic Crystals”
Wonmok Lee, Postdoctoral Research Associate, Advanced Chemical Systems Group, Beckman Institute, UIUC

OCTOBER 11, 2001
“Equitable, Flexible and Empowered: A New Model for Organizing a Workplace”
Danielle Chynoweth, Graphic Design Director, On the Job Consulting, Inc., Urbana, IL

OCTOBER 18, 2001
“Using Bryce 5 Rendering Software for Experimental Design in Cognitive Neuroscience”
Steve Day, Graduate Research Assistant, Cognitive Neuroscience Group, Beckman Institute, UIUC

OCTOBER 25, 2001
“Avoiding a Data Crunch: Where Do We Store Our Images?”
Dr. Igor Kuriashkin, Assistant Professor, College of Veterinary Medicine, UIUC

NOVEMBER 1, 2001
“Designing Architecture: Concept Sketching in the CAVE™”
Joy Monice Malnar, Assistant Professor, School of Architecture, UIUC

NOVEMBER 8, 2001
“Printing Reconstructed Confocal Data on the 3D Printer”
Daniel Weber, Senior Research Programmer, Imaging Technology Group, Beckman Institute

NOVEMBER 15, 2001
“Genome Technologies at the W.M. Keck Center for Comparative and Functional Genomics”
Dr. Mark Band and Dr. Lei Liu, W.M. Keck Center for Comparative Genomics, UIUC

NOVEMBER 22, 2001
“No Forum This Week”
University Holiday

DECEMBER 7, 2001
“A Survey of the Online Teaching Tools of WebCT 3.1”
Robert Baird, Computer Assisted Instruction Specialist, Center for Educational Technologies, UIUC

DECEMBER 14, 2001
“Condor: A High Throughput Computing Environment”
Jeff Terstriep, Chief Technical Officer, KnowledgePort Alliance, Inc., Champaign
01-001
"An XML Language Template Design for Managing a Remote Instrument Educational Outreach Program"
A. LAZAREVICH, B. CARRAGHER, C.S. POTTER, AND D. WEBER
(Submitted to Microscopy and Microanalysis 2001 on 2/15/01)

01-002
"Automated Very Low Magnification Imaging for TEM"
C.S. POTTER, B. CARRAGHER, D. KRIEGMAN AND J. PULOKAS
(Submitted to Microscopy and Microanalysis 2001 on 2/15/01)

01-003
"Automation for Cryo-TEM: From Specimen Grid to 3D Map"
(Submitted to Microscopy and Microanalysis 2001 on 2/15/01)

01-004
"Application of a SQL Database for Automated Image Acquisition and Analysis for CryoTEM"
D. FELLMAN, B. CARRAGHER, C.S. POTTER, AND J. PULOKAS
(Submitted to Microscopy and Microanalysis 2001 on 2/15/01)

01-005
"Automated Filament Finding and Selection from Cryo Electron Micrographs"
ZHU, B. CARRAGHER AND C.S. POTTER
(Submitted to Microscopy and Microanalysis 2001 on 2/15/01)

01-006
"Exhibition Proposal for Image and Meaning 2001: Live Demonstration of irma (Interactive Remote Microscopy Application)"
BENJAMIN GROSSER
(Submitted to The Image and Meaning Conference, June 13-16,2001)

01-007
"Converting Animations To Quicktime Movies Using Maya Fusion Lite"
ROB GILLESPIE

01-008
"Top2maya – A Tool for Converting 2D Topographical Maps to 3D Models"
R. GILLESPIE

01-009
"Physical Data Visualization and Rapid Prototyping with the Genisys Xs"
JO WOZNIAK

01-010
"Detection of Filamentous Structures in Low-Contrast Images Acquired in Defocus Pair by Cryo-Electron Microscopy"
YUANXIN ZHU, BRIDGET CARRAGHER, DAVID KRIEGMAN AND CLINT S. POTTER
(Submitted to IEEE Computer Society Conf. Computer Vision and Pattern Recognition, Hawaii)

01-011
"A Database for Leginon: An Interactive User Interface for Automated Acquisition of Transmission Electron Micrographs"
D. FELLMANN, B. CARRAGHER, C.S. POTTER AND J. PULOKAS

01-012
"Automated Identification of Filaments in Cryo-electron Microscopy Images"
YUANXIN ZHU, BRIDGET CARRAGHER, DAVID KRIEGMAN, RONALD MILLIGAN, AND CLINTON S. POTTER
(Submitted to the Journal of Structural Biology)

01-013
"Inserting a Flash Animation Into Microsoft PowerPoint"
JO WOZNIAK

01-014
"MRC3DLL"
ARASH MAHDIAN

01-015
"MRC3DLL Extension"
ARASH MAHDIAN
01-016
“MolSlicer – A Tool for Removing Sections of mol2mel Molecules”
ROB GILLESPIE

01-017
“Scanning Slides Using the Nikon LS2000”
JO WOZNIAK

01-018
“Annual Report”
BUGSCOPE

Bugscope is a second-generation educational outreach project that provides remote scientific instrumentation to K-12 classrooms. Students participating in the project can remotely control an environmental scanning electron microscope (ESEM) from their schools using the Internet and a Web browser. The project is structured so that the instrument is provided as a resource while leaving the planning, execution and control of the experiment in the hands of the teachers and the students. The classroom plans the project, mails in a specimen and on a scheduled date and time takes control of the microscope from the computers in their classroom. They use control panels launched from a web browser to move the specimen stage, change magnifications and vary imaging parameters in order to interactively acquire and view images required to fulfill the scientific goals of their proposed experiment.

STATISTICS

Total Number of Sessions: 29
Total Number of Schools: 19
Total Number of Images Collected: 3761
Total Number of States Involved: 14
All Participating States With Number of Sessions: AZ – 1, CA – 1, IL – 3, LA – 1, MA – 1, MY – 1, NH – 3, NJ – 1, OH – 1, RI – 1, TN – 3, TX – 6, WA – 1, WI – 2

SESSIONS

JANUARY 23, 2001 – TEXAS CITY, TX
School: Blocker Middle School
Proposal: 2000-031
Grade Level: 7th and 8th Grade
Teacher: Judy Lee
Specimen: Monarch Butterfly and chrysalis
Database Info: 109 images collected

JANUARY 25, 2001 – KENT, OH
School: Ameritech Electronic Classroom
Proposal: 2000-033
Grade Level: 4th Grade
Teacher: Patricia Mazzer
Specimen: Sphagnum moss, mosquito, wingless bee, cockscomb seeds, florets, lichen, tamarack twig, cotton grass and stem, gray birch seeds
Database Info: 137 images collected

FEBRUARY 13, 2001 – MARLBOROUGH, NH
School: Marlborough School
Proposal: 2001-001
Grade Level: 6th, 7th, and 8th Grade
Teacher: Larry Taylor
Specimen: Spiders, mosquito, junebug, bee
Database Info: 159 images collected

FEBRUARY 20, 2001 – CHAMPAIGN, IL
School: Champaign Central High School
Proposal: 2001-06
Grade Level: 9th Grade
Teacher: Susan Herricks
Specimen: Fleas and nits
Database Info: 173 images collected
BUGSCOPE CONT.

MARCH 7, 2001 – TEXAS CITY, TX
School: Blocker Middle School
Proposal: 2001-004
Grade Level: 7th and 8th Grade
Teacher: Judy Lee
Specimen: Mosquitos, crane flies, wasp
Database Info: 180 images collected

MARCH 22, 2001 – MILWAUKEE, WI
School: Marquette University
Proposal: 2000-039
Grade Level: College
Teacher: Michele A. Korb
Specimen: Moth, Spider, Junebug
Database Info: 53 images collected

MARCH 27, 2001 – HAMPTON, NH
School: Centre School
Proposal: 2001-002
Grade Level: 2nd Grade
Teacher: Rita Colby
Specimen: Mosquitos, millipede, moth, fly, ant, beetle
Database Info: 88 images collected

MARCH 28, 2001 – NASHVILLE, TN
School: University School of Nashville
Proposal: 2001-005
Grade Level: 2nd Grade
Teacher: Scott Merrick
Specimen: Pillbug, spiders and ants
Database Info: 76 images collected

APRIL 24, 2001 – ORANGE, TX
School: Little Cypress Jr. High
Proposal: 2001-009
Grade Level: 7th Grade
Teacher: Susan Ellis
Specimen: Black ant, brown ant, millipedes, wood roach, small beetles, large beetles, pillbug
Database Info: 321 images collected

MAY 15, 2001 – NASHVILLE, TN
School: University School of Nashville
Proposal: 2001-014
Grade Level: 2nd Grade
Teacher: Scott Merrick
Specimen: Firefly, yellow jacket, small fly, mosquito, centipede, spider
Database Info: 89 images collected

MAY 1, 2001 – MILWAUKEE, WI
School: Sarah Scott Middle
School/Marquette University
Proposal: 2001-010
Grade Level: College
Teacher: Michele Korb
Specimen: Ladybug, yellow jacket, mosquitos, spiders, fly, moth
Database Info: 45 images collected

JUNE 5, 2001 – FARMINGTON, NH
School: Memorial Drive Elementary
School
Proposal: 2001-017
Grade Level: 4th Grade
Teacher: Caroline Jones
Specimen: Moth, ants, mosquito, fly, spider
Database Info: 56 images collected

JUNE 28, 2001 – HOUSTON, TX
School: Rice University/GirlTech
Proposal: 2001-020
Grade Level: Private
Teacher: Judy Lee
Specimen: Pillbug, flies, bee, beetle, ant, spider, leaf hopper, fly parts
Database Info: 40 images collected

JUNE 28, 2001 – HOUSTON, TX
School: Rice University/GirlTech
Proposal: 2001-027
Grade Level: Private
Teacher: Judy Lee
Specimen: Pillbug, beetle, mosquito, flies, mystery fly, Illinois black ant, moth
Database Info: 59 images collected

MAY 1, 2001 – SHILOH, IL
School: Shiloh Village School
Proposal: 1999-080
Grade Level: 1st Grade
Teacher: Julie Deignan
Specimen: Spider and cricket
Database Info: 48 images collected
School: Montgomery Blair High School
Proposal: 2001-024
Grade Level: Not indicated
Teacher: Susan Ragan
Specimen: Millipede, spider, damsel fly, ant, beetle
Database Info: 5 images collected

School: Vechij Himdag MashchamakuD Alternative School
Proposal: 2000-031
Grade Level: 7th, 8th and 9th Grade
Teacher: Loraine Kesselring
Specimen: Assassin Bug Exuvium, Whitefly Pupae, scorpion parts, caterpillar parts, caterpillar dung, ants
Database Info: 172 images collected

School: Blocker Middle School
Proposal: 2001-039
Grade Level: 7th and 8th Grade
Teacher: Judy Lee
Specimen: Ants, roach, weevil, spider, earwigs, beetle, leaf
Database Info: 179 images collected

School: Blocker Middle School
Proposal: 2001-060
Grade Level: 7th and 8th Grade
Teacher: Judy Lee
Specimen: Beetles, weevil, earwig, wolf spider, mystery and mangled bugs
Database Info: 98 images collected

School: Harrington Middle School
Proposal: 2001-041
Grade Level: 8th Grade
Teacher: Maureen Barrett
Specimen: Milkweed beetles, milkweed bug, aphids, ants, fly, ladybug and monarch molting heads
Database Info: 120 images collected

School: St. Andrew’s Episcopal
Proposal: 2001-037
Grade Level: 4th, 5th and 6th Grade
Teacher: Shelley Witkin
Specimen: Stink bug, beetle, wasp head, moth, ladybug, dragonfly
Database Info: 103 images collected

School: Edison Middle School
Proposal: 2001-056
Grade Level: 6th Grade
Teacher: Geoff Freymuth
Specimen: Water Scorpion, backswimmer, whirligig, giant water bug, toad bug, crawling water beetle, mayfly nymph
Database Info: 477 images collected

School: Shore Country Day School
Proposal: 2001-019
Grade Level: 6th Grade
Teacher: Jane Harris
Specimen: Tick, bee, ant, cricket legs, ant, cockroach, scorpion
Database Info: 293 images collected

School: Marquette University School of Education
Proposal: 2001-065
Grade Level: Pre-service teachers
Teacher: Michele Korb
Specimen: Moth, ladybugs, spider body, mosquitos, fly, monarch
Database Info: 56 images collected

School: U.S. Congress
Proposal: 2001-042
Grade Level: N/A
Teacher: Kennie Endelman
Specimen: Ants, bark beetle, mayfly larva, beetle, moth, earwig, fly
Database Info: 249 images collected
November 20, 2001 – Bristol, RI
School: Byfield School
Proposal: 2001-058
Grade Level: 2nd Grade
Teacher: Jacqueline Taylor-Gast
Specimen: Pillbug, ants, beetles, spider, wolf spider, leaf
Database Info: 104 images collected

December 4, 2001 – Berkeley, CA
School: Oxford School
Proposal: 2001-057
Grade Level: 4th and 5th Grade
Teacher: Cherene Fillingim-Selk
Specimen: Bee, ladybug, millipede, sowbug, ants, spider, grasshopper, pupa
Database Info: 91 images collected

December 18, 2001 – Lopez, WA
School: Lopez School
Proposal: 2001-034
Grade Level: K-5th Grade
Teacher: Greg Ewert
Specimen: Monarch Caterpillar Head capsules, monarch wing, ant, aphids, ladybug, millipede, housefly, beetles
Database Info: 285 images collected
TOURS

THE IMAGING TECHNOLOGY GROUP HAS GIVEN A TOTAL OF 41 TOURS IN 2001

JANUARY – 2 Tours
18: MS/VMIL; Kristi Kiick, Faculty Candidate (Glenn, Ben)
19: MS; Fred Beyer, Chemical Sciences (Bridget, Clint)

FEBRUARY – 4 Tours
1: MS; Executive vice president, Lucent (Glenn, Ben)
12: MS/BugsScope; Pat Beckman and friends (Glenn, Ben, Scott, Daniel)
19: VMIL; Lofti Zadeh, Director of the Berkeley Initiative in Soft Computing at UC-Berkeley (Ben, Glenn, Clint)
20-23: BugsScope; Role of Technology in Education Conference, St. Charles, IL (Bridget)

MARCH – 6 Tours
1: MS/VMIL; EAC Open House Tour (Glenn/Ben)
2-3: MS/VMIL; BI Open House
9: MS; Distinguished Visitor for JQ (Glenn)
19: MS; Philip Newmark (Glenn)
22: MS; Cherry Murray (Glenn)
30: MS; Dr. Christopher Schoenherr, Faculty candidate (Glenn)

APRIL – 10 Tours
2: VMIL; Professors Fabiana and Gratton for JQ (Ben)
4: VMIL/MS; Tour for Central States Microscopy and Microanalysis Meeting participants (Ben, Glenn)
9: MS; Patrick E. Rea, Executive Director, Illinois Development Finance Authority, Sears Tower (Scott)
11: MS/VMIL; Ned Goldwasser and John Sykes for Jiri (Bridget, Clint)
11: MS/VMIL; Tour for Arthi 291A: Text, Image and Technology class (Ben, Bridget)
18: MS; Conly Riley (Bridget)
18: MS and scope demo; Dan Szymanski, Purdue University (Glenn)
20: VMIL; Lisa Sloan and teachers (Ben, Glenn)
23: MS; Bill Ballard (Glenn)
24: MS; Russell Taylor, University of North Carolina (Glenn)
27: MS; Pat Beckman (Glenn, Ben, Scott)

MAY – 3 Tours
1: MS; DARPA Visitors for JQ (Bridget)
3: MS; Professor Eigen for Jiri (Bridget, Clint)
16: MS/VMIL; Wolfgan Huttner (Bridget, Ben, Scott, Daniel)

JUNE – 4 Tours
4: VMIL; Bruce Wheeler visitor (Daniel)
18: MS; Dean David Daniels (Bridget, Clint)
22: VMIL; Tasmanian visitor for JQ (Ben)
27: MS; Jackie Dorrance, Executive Director for Beckman Foundation (Glenn, Ben)
TOURS CONT.

JULY – 3 Tours
2: MS; General Rod Kelly for Mike Smith (Glenn)
6: VMIL; William Hoff, Upward Bound College Prep Academy (Ben)
12: VMIL; HCBU Tour for Allison Clarke, NCSA (Ben)

AUGUST – 2 Tours
16: MS/VMIL; Phonak and Cochler, (Glenn)
30: Bugscope/MS/VMIL; R.J. Lee (Glenn, Ben)

SEPTEMBER – 0 Tours

OCTOBER – 5 Tours
2: MS/VMIL; Hans Hessel, Phonak (Glenn, Ben)
5: VMIL; Kyle Newton for Prof. Beaudoin (Ben)
16: MS; Computational Meeting Tour (Glenn)
17: MS/VMIL; Volker Kuhnel, Phonak (Glenn, Ben)
17: MS/VMIL; James Hardie (Scott)

NOVEMBER – 0 Tours

DECEMBER – 2 Tours
11: MS/VMIL; Heather Mangian’s CHS class (Glenn, Ben)
11: MS/VMIL; Animal Science Faculty Candidate (Glenn, Ben)
**PUBLICATIONS**

**Papers**


**Visual**

- “Autonomic Healing of Polymer Composites”. An animation by ITG staff Rob Gillespie and Ben Grosser that illustrates the ‘self-healing materials’ concept of research by Scott White, Michael Kessler, Nancy Sottos et al.
- “Changing Phase States of Water”. An animation by ITG staff member Rob Gillespie that illustrates the concept of the changing phase states of water (from solid to gas, with intermediate steps) as a thesis research instrument for a doctoral student in Food Science at UIUC.
- “Open House 2001: A Short Documentary”. A short documentary that presents the research displayed and viewer reaction from the Beckman Institute’s 2001 Open House.
- “Colloidal Stabilization via Nanoparticle Halos”. A 3D still by Valeria Tohver, illustrating the work of Jennifer A. Lewis, Carlos Martinez and Tohver. This image was used as the cover of the *Proceedings of the National Academy of Sciences*, July 31, 2001.
EXTERNAL PRESENTATIONS AND TECHNOLOGY DEVELOPMENT

The ITG has presented their technology at the following external locations

- *Image and Meaning Conference*, MIT, May 2001. Grosser was a guest exhibitor at this conference exploring the crossovers between art and science. He presented live Bugscope demonstrations to scientists, artists and educators from around the country.

- *Beckman@Science*, November 2001. Grosser presented Bugscope technology to Beckman@Science, an educational outreach organization funded by the Beckman Foundation.

- “Emerging Technologies: LIS 250”. Grosser presented Bugscope technology and theory to LIS 250, a class on emerging educational technologies for the School of Library and Information Science.

Technology Development Projects

Remote Instrumentation

- Bugscope underwent several enhancements in 2001, including improved auto focus routines and extended multi-platform capabilities.

Visualization Technology

- *mol2mel*, a package for converting molecular models into Maya models for high-quality rendering and animation, was developed. This package automatically colors and orders each atom based on its element type.

- *top2maya*, a package for automatic conversion of two-dimensional information into 3D information was developed. This package is primarily used to convert atomic force microscope (AFM) data into 3D models for visualization purposes. This package automatically converts the data and builds and textures the model. Additionally, it also sets up automatic lighting and animation, and configures the system for rendering out left-right pairs for stereoscopic viewing and animation.

- *molSlicer* enables fine, multi-object segmentation of molecular models created with mol2mel.

- *dot2mel* converts 3D coordinate spaces into particle fields or spheres within Maya for visualization. It can be used to visualize pointcloud fields from Cerius .dot files, as well as for a variety of other purposes for 3D visualization of point data, such as with colloidal microspheres.
**Total Number of Active Accounts for 2001**

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<thead>
<tr>
<th>Service</th>
<th>Unique</th>
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<tbody>
<tr>
<td>VMIL</td>
<td>313</td>
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<tr>
<td>Microscopy Suite</td>
<td>170</td>
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<tr>
<td><strong>Total</strong></td>
<td>483</td>
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### Beckman/Non Beckman Users in 2001

<table>
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<tr>
<th>Beckman Affiliated Groups</th>
<th>Non-Beckman Affiliated Departments</th>
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</thead>
<tbody>
<tr>
<td>ACS</td>
<td>Aero &amp; Astro Engineering</td>
</tr>
<tr>
<td>AI</td>
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WEB STATISTICS

ITG Web Hits in 2001 (average daily) – 22468
Everyone Excluding ITG

Bugscope Web Hits in 2001 (average daily) – 6432
Everyone Excluding ITG

Chickscope Web Hits in 2001 (average daily) – 15760
Everyone Excluding ITG
**CONTACT INFORMATION**

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<thead>
<tr>
<th>PERSON</th>
<th>AFFILIATION</th>
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</table>

**Other ITG Related Numbers**

- VMIL: 244-3074
- Microscopy Suite: 244-7221
- Machine Room: 244-3876
- AFM Room: 244-4473
- ESEM Room: 265-8164
- Fax Machine: 244-6219

**Other Beckman Numbers**

- Purchasing (Bruce Barnes): 244-8376
- BISS Help Desk: 244-2904
- Security: 244-2692
- Computer Central Stores: 244-0139
- Beckman Store (Suzie Rook): 244-1080
- Receiving: 244-6772