

# RESEARCH ABROAD AT GEORGIA TECH: FACULTY, ADMINISTRATOR, AND STUDENT PERSPECTIVES

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## HOW RESEARCH ABROAD RELATES TO GT'S GOALS



- Research is in our DNA as a Research I Institution
- Current Strategic Plan emphasizes need to:
  - develop new approaches to engaging undergraduates in research activities
  - seek and conduct research that identifies and solves critical global challenges
  - send more students abroad for research
  - establish strategic partnerships around the globe that complement our academic and research strengths
- GT promotes undergraduate involvement in research:
  - 2005 QEP created “Undergraduate Research Opportunities Program”; mission is to empower students to better the world and themselves through discovery and invention
  - “Learning is based on discovery guided by mentoring...Inherent in inquiry-based learning is an element of reciprocity: faculty can learn from students as students are learning from faculty”
  - UROP promotes overseas research as option
  - 2015 survey of undergraduates: 34% interested in research abroad

## HOW RESEARCH ABROAD RELATES TO GT'S GOALS



- Current Graduate Education Strategic Plan calls for:
  - Graduates to have an awareness of the diversity of business and policy environments in different countries; appreciation and respect for differences among cultures; appropriate levels of humility in the face of growing economic capability across the globe
  - Students to have the opportunity and support to do research abroad at international laboratories
  - GT to capitalize on established international relationships to create opportunities for student scholarship and research abroad

- Students doing overseas research fall into various administrative categories:
  - Global Internship Program
  - International Academic Project
  - Exchange
- In 2015-16:
  - 32 of 151 (21%) Global Interns did (non-credit) research abroad
    - 13 Bachelors; 4 Master's; 15 PhD
  - 3 undergraduate students did Aachen Summer Research Exchange Program
  - Approx. 30 others did research as an IAP
- Collaborate with UROP, Prestigious Fellowships, faculty, and graduate coordinators to promote and capture overseas research
- Students who register in some fashion receive advising, insurance

## EXAMPLES OF GLOBAL INTERNSHIPS WITH RESEARCH FOCUS



- TUM PREP
- DAAD RISE & RISE Professional
- American Chemical Society
- Think Swiss / EPFL
- Direct placements in labs abroad (through faculty connections or at partner schools)
- Informal research “exchanges” facilitated by GT’s J-Intern Program
- GT Research Centers or Innovation Centers abroad
- Chateaubriand, Whitaker, NSF, Fulbright grants
- Corporate research centers (ex: Microsoft, Xerox)

I found this international research experience for undergrads (IREU) on the NSF website. They have a search engine for NSF funded REU's. I spent two and a half months in Ulm, Germany at Ulm University working in an inorganic chemistry lab. Along with the work in the lab, I will have to submit a report summarizing my work over the summer. Additionally, I presented my results at the American Chemical Society National Conference in April 2017.  
– Nathan James (MSE)

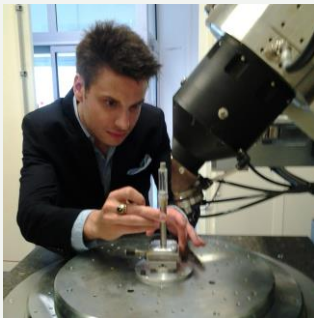




## GT FACULTY-INITIATED RESEARCH ABROAD

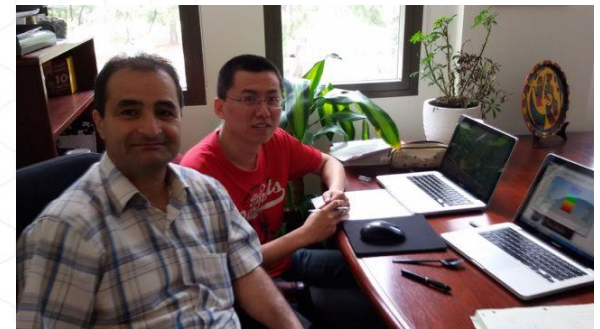


- Chloé Arson, Professor in Civil & Environmental Engineering
- NSF International Research Experience for Students (IRES) grant for three years
- Coupled Geomechanical Processes and Energy Technologies - Research Experience at Ecole des Ponts Paris Tech - ENPC, France ('CGPET - ENPC')
- Select GT-CEE undergraduate and graduate students
- Each year, 5-7 teams of faculty and students participate
- Full participation takes a year – few months of prep, 2 months at Navier lab (June-July), several months to disseminate results and recruit new participants
- Research planned and supervised by dual faculty mentors, one in ENPC, one in GT-CEE, who travel to be with their mentees



Left: GT graduate student using ENPC micro-tomographer.

Right: ENPC professor visiting GT to co-advise a GT student on numerical modeling of time-dependent fracture propagation.



## TIMELINE

	Students	Faculty Mentors
November	Former GT-CEE students involved in 'CEE Gateways to France' and/or in 'CGPET - ENPC' share their experience with GT-CEE undergraduate & graduate students.	
November - Early January		ENPC/GT-CEE mentors propose research topics and related activities for a summer internship at ENPC.
Early February	Interested GT-CEE students apply by proposing a research plan and research motivations in response to internship offers.	
March - May	Selected IRES participants work with their GT-CEE and ENPC mentors (with video-conference) to delineate the scope of the internship and start a literature review.	
	Selected IRES participants take French classes.	
	Logistics bi-weekly meeting (travel, accommodation, ENPC pre-orientation).	
June - July	<b>Internship: CGPET - ENPC</b>	
07/24 - 07/31	GT-CEE students present their research work in front of a committee constituted of ENPC faculty, ENPC graduate students, one GT-CEE mentor (at ENPC as a visiting scholar).	One GT-CEE mentor works with his/her ENPC collaborator at ENPC, as a visiting scholar.
08/01-08/08	GT-CEE students present their work to GT-CEE students during a half-day mini-symposium.	The two above-mentioned mentors work at GT-CEE (the ENPC mentor is now a visiting scholar at GT).
September	GT-CEE/ENPC teams report their findings and deliverables in a dedicated wikipage.	

## BENEFITS OF INTERNATIONAL RESEARCH COLLABORATIONS



### Institutional:

- Expands and bolsters GT's global network
- Supports long-term collaborations between institutions, labs, and alumni
- Supports mobility of faculty, undergraduate, and graduate students
- Moves research forward by drawing on strengths of different institutions
- May lead to further collaboration (academic exchanges, graduate student recruitment)
- Furthers GT's mission to contribute to solving pressing global challenges



# BENEFITS OF INTERNATIONAL RESEARCH COLLABORATIONS



## Students:

- Opportunities to publish and present
- Contributes to research at home institution, enhances dissertation\*
- Gateway to elite universities around the world
- Exposure to life in academia and exciting projects, new technologies
- Encourages future participation in research
- Refine career goals
- Develop communication and problem-solving skills
- Opportunity to work in a fairly flexible and independent environment
- Truly international workplace, but usually, still get to be around other students

## CHALLENGES



- Inconsistent funding opportunities
- Export control, IP, and confidentiality issues, especially at graduate level
- Research is not centrally administered so can be hard to track institutionally – can lead to risk management issues
- Hard to place students en masse – must be right fit for that particular project/lab
- Varying degrees of academic oversight
  - Unless undergrads travel with faculty, it is usually unrelated to GT
  - Grad students usually remain under supervision of their faculty advisor

THANK YOU!



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