

Robotics & Autonomous Systems

ORIENTATION 2021

R&AS Orientation Fall 2021

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Icebreaker

- Turn to another student and ask a bit about them, such as:
 - What's your name?
 - Where did you do your undergraduate studies?
 - What is your favorite hobby?
 - What do you think of when we say "robotics"?
- I will call on some people and ask them to share something about the person they talked with...

Program Planning Sheet

1) Core Course Requirement - 4 credits

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>	<u>Semester/Year</u>	<u>Grade</u>
EK505 A1	Introduction to Robotics and Autonomous Systems	4	Fall _____	_____

2) Robotics Core Requirement - 16 credits

<u>Area</u>	<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>	<u>Semester/Year</u>	<u>Grade</u>
C	_____	_____	_____	_____	_____
D	_____	_____	_____	_____	_____
P	_____	_____	_____	_____	_____
ML	_____	_____	_____	_____	_____

3) Technical Elective Requirement - 12 credits

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>	<u>Semester/Year</u>	<u>Grade</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

4) Practicum

<u>Placement</u>	<u>Semester/Year</u>
_____	_____

Coursework Requirements

- **Core Course Requirement (4 credits)**

Introduction to Robotics and Autonomous Systems (Fall) - ENG EK505 A1

- **Robotics Core Requirement (16 credits)**

Students much choose a course from the list below in each of the four areas of Control (C), Perception (P), Design (D), and Machine Learning (ML). Each selected course can only satisfy one core area.

Course Number	Course Name	Area	Term
ENG ME 570	Robot Motion Planning	C, P	Fall
ENG ME 571	Medical Robotics	D	Fall
ENG ME/SE 740	Vision, Robotics, and Planning	C, P	Spring
ENG ME 568	Soft Robotics	D	Spring
ENG EC/ME/SE 734	Formal Methods in Robotics	C	Spring
ENG EC 5XX	Cyberphysical Systems	P	Fall
ENG EC 503	Learning from Data	ML	Both
CAS CS 542	Machine Learning	ML	Both
ENG EC 523	Deep Learning	ML	Fall

- **Technical Elective Requirement (12 credits)**

Any graduate-level course in the College of Engineering or in the College of Arts and Sciences and includes those on the list above of robotics core (if not used to satisfy a core requirement).

Thoughts about robotics skills

- Programming

- Definitely Python, consider C++
 - Many online resources available: [codecademy.com](https://www.codecademy.com), [udemy](https://www.udemy.com), [coursera](https://www.coursera.com), google
 - You do not have access to BU undergraduate classes 😞
 - Form a study group and work your way to proficiency!

- Robot Operating System

- While not explicitly used (yet?) in our courses, you can choose to use it for your projects (particularly [ME 570](#) and perhaps [EK 505](#)). Ask your instructors!
- Online resources available: ros.org, theconstructsim.com

Fall 2021 Semester Dates

Thursday, September 2: Classes Start

Thursday, September 16: Last Day to Add Courses

Thursday, October 7: Last Day to Drop (without a “W”)

Friday, November 5: Last Day to Drop (with a “W”)

Monday, September 6: Labor Day - No Classes

Monday, October 11: Indigenous Peoples’ Day – No Classes

Tuesday, October 12: Substitute Monday Schedule of Classes

Wednesday November 24 – Sunday, November 28: Thanksgiving Recess – No Classes

Friday, December 10: Last Day of Classes

Tuesday, December 14– Saturday, December 18: Finals

Semester Dates (Registrar):

<https://www.bu.edu/reg/calendars/semester/>

Registering for Spring 2022

- Basic sequence:
 - Meet with your advisor (Andersson) to discuss how the term is progressing, plans for the future, and your course plan for the next term.
 - Receive an advising code.
 - Register once registration opens!
- More information will be forthcoming as the semester goes on.
- Don't believe the link (yet!). Look to Anna until registration actually opens.

Practicum Requirement

- **Practicum Requirement**

The practicum must be satisfied during a summer term through one of the following mechanisms:

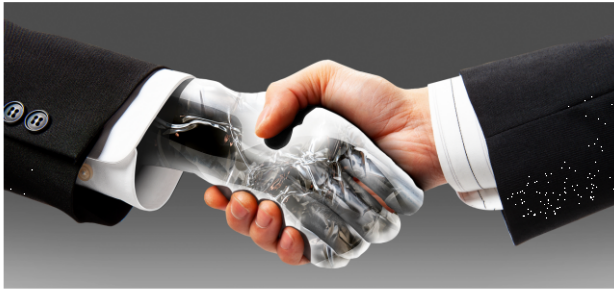
1. An industrial internship with a placement through the R&AS program
2. An independently arranged industrial internship with prior approval of the program
3. A research internship in the lab of a participating faculty member

NOTE: Regardless of the mechanism, the internship must consist of at least 360 hours of effort.

Companies & Internships

Amazon Robotics	ProDrive	The MathWorks	DEKA	Optimus Ride	Phillips Robotics
Realtime Robotics	Greensight Agronomics	Yrobot	Medtronic	PTC	Maxar Space Robotics
The Gillette Company	MERL	Ava Robotics		Mitsubishi Electric Research Labs	MassRobotics

- Timeline
 - We need your resumes **now** so we can give you feedback
 - Resumes out to companies in **early November**
 - Companies have their own schedules but hopefully most will reach out in **November/December**
 - Repeat in **February/March**
 - **Begin looking at faculty lab placements in late March**
- Encouraged also to seek out your own opportunities
 - Locus Robotics, Brigham and Women's, Hyperfine
 - Career fairs (BU and other), slack notifications, your own searches



SEAPORT x MASSROBOTICS



ROBOTICS & AI TECHNICAL CAREER FAIR

Oct 1, 4:00 – 6:00pm

District Hall, 75 Northern Ave, Boston

Register [here](https://bit.ly/3iZKpQJ) : <https://bit.ly/3iZKpQJ>

The robotics industry is growing exponentially, and talent is in high demand. This targeted event is designed for technical industry job seekers, including both recent graduates and seasoned engineers, computer scientists, vision specialists, mechatronics experts, AI professionals, and all others seeking career opportunities with robotics/AI companies. Companies from start-ups to industry leaders will be hosting information tables where candidates can learn more about the company, find out what positions are open, and schedule interviews. Free and open to the public, job seekers must register in advance. (Hiring robotics/AI companies interested in participating contact info@massrobotics.org)

Participating companies include:



more announced soon!

Career Development Office (CDO) Workshops

- Every Tuesday evening in September, 5:30pm-6:30pm
 - **9/7, 9/14, 9/21, 9/28**
- Mary Bertrand - CDO contact
 - mbert@bu.edu
- Topics will include:
 - i. Active resume session, participants will work on resumes in real time after a brief presentation about best practices
 - ii. Active cover letter session
 - iii. Job Search Techniques and Benchmarking, participants will craft individual action plans for searching and applying to positions after brief presentation
 - iv. Engaging with Employers, participants will learn about how to reach out to alumni/ employers, how to effectively engage with them, will in real time send a cold email to one alumni, and will practice their pitch/speaking professionally about themselves

What To Expect

- Lots of surveys! Please make sure to answer them
- Some non-trivial amount of chaos as we (continue to) figure out year 2
- COVID restrictions are ongoing this term
- Use slack to interact with your fellow RAS students, Anna, and myself

Optional Specializations

- Data Analytics
- Cybersecurity
- Robotics (probably unnecessary for you!)

To earn a specialization designation, students complete a sequence of four courses (16 credits) consisting of two required courses (8 credits) and two courses (8 credits) chosen from a specific list of additional course options.

After matriculating into an existing degree program, all Master's degree students are eligible to pursue an appropriate Specialization, which will be added to their degree title on their transcript. Students must declare a specialization and receive approval for it as soon as possible after beginning an academic program.

<https://www.bu.edu/eng/programs/masters-degree-specialization-programs/>

Who Should I Contact?

- Administrative matters (registration, graduation, thesis, ISSO-related):
 - Anna Masland, Master's Programs Administrator
 - mechems@bu.edu
 - You can book an appointment with Anna at amasland.youcanbook.me
 - Appointments can be in-person, on Zoom, or a phone call
- Other academic or curricular questions:
 - Sean Andersson: Director of Robotics & Autonomous Systems
 - sanderss@bu.edu

Current Student Q&A

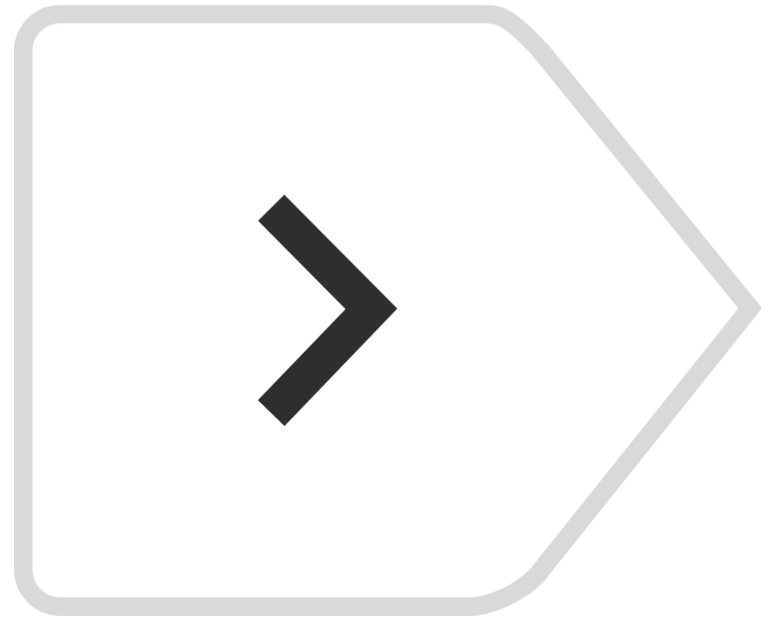
Jiaer Xu

Connect to any students on Slack!

ENGG CDO

Intro to the CDO

Mary Bertrand, Assistant Director



ENIGCDO

Our Team



Doug Edwards
Director



Mary Bertrand
Asst. Director



Dave Brown
Asst. Director



We're Hiring!
New Advisors Coming Soon.

ENG CDO

CDO Advising

Resume & Cover Letter Reviews

Career Fair Preparation

Internship & Job Search Support

Interview Prep, Tips, & Tricks

Explore Career Options

Job Offers & Salary Negotiation

Networking Preparation

And more!

Events & Workshops

- Career Fairs
- Job Search Workshops
- Alumni Meet & Greets
- Industry & Alumni Panels
- Mock Interviews

BU COLLEGE OF ENGINEERING

ENGINEERING & BIOTECH CAREER FAIR

VIRTUAL

BU
Boston University College of Engineering
Career Development Office

FRIDAY, OCTOBER 9
11AM - 4PM ET

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

Engineering Alumni Panels

Software Industry	Engineer to Med School	Careers in Aerospace
June 30 11 am ET	July 2 12 pm ET	July 2 4 pm ET

Register at bu.joinhandshake.com

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

ENGINEERING NETWORKING NIGHTS

THURSDAYS | 5:30PM - 6:30PM ET

10/15 BUSINESS & CONSULTING
10/22 MEDICAL DEVICES & DATA SCIENCE
10/28 SOFTWARE, HARDWARE, & PRODUCT DESIGN
11/05 MANUFACTURING, AUTOMOTIVE, & PRODUCT DESIGN
11/12 BIOTECH, LIFE SCIENCES, & HEALTHCARE
11/19 AEROSPACE & AERONAUTICS

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

Summer's In Session Career Success Series

by the Engineering Career Development Office

MAY 19 CVs FOR GRAD SCHOOL	MAY 20 JOB & INTERNSHIP SEARCH	MAY 26 VIRTUAL INTERVIEWING
MAY 27 HANDSHAKE & LINKEDIN PRO TIPS	JUNE 2 ONLINE DESIGN PORTFOLIOS	JUNE 3 VIRTUAL NETWORKING

ALL SESSIONS BEGIN AT 1PM EDT
RSVP and more info at: bu.joinhandshake.com

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

#HIRED

An Engineering Career Fair Workshop Series

RESUME BEST PRACTICES Monday, September 28 4pm - 5pm ET	GAINING EXPERIENCE IN A PANDEMIC Tuesday, September 29 12pm - 1pm ET
PREPARE FOR THE CAREER FAIR NOW! Wednesday, September 30 4pm - 5pm ET	FM AT THE CAREER FAIR, HOW OHAY! Thursday, October 1 12pm - 1pm ET

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

"10 THINGS ENG STUDENTS SHOULD DO IN THE FIRST 2 YEARS ON THE JOB"

SPECIAL GUEST SPEAKER
EARL VALENCIA



THURSDAY
JUNE 25 | 11AM ET
Register at bu.joinhandshake.com

THE ENG CAREER DEVELOPMENT OFFICE PRESENTS

ENG MOCK TECHNICAL INTERVIEWS

WITH ENG ALUMNI

UPLOAD YOUR RESUME & SIGN UP ON HANDSHAKE:
[HTTPS://BU.JOINHANDSHAKE.COM/JOBS/3288881](https://bu.joinhandshake.com/jobs/3288881)

REGISTRATION DEADLINE: JUNE 7

THE ENG CAREER DEVELOPMENT OFFICE AND GIRLS WHO CODE PRESENT

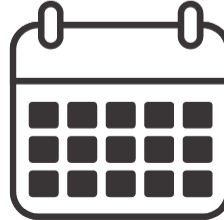
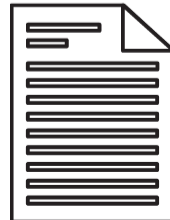
LINKEDIN FOR JOB SEARCH

THURSDAY NOVEMBER 5
6:30PM ET



Register on Handshake
Anyone regardless of gender can attend.

Online Resources



- Handshake & Online Tools
- One Pagers & Quick Tips
- Video Library
- Event Calendar

ENG CDO

Stay Connected!

Book a 1:1
Appointment



Join the Eng
LinkedIn Group



Chat with Alumni
on BU Connects



Read our
Newsletter



COLLEGE OF ENGINEERING
CAREER DEVELOPMENT OFFICE

ENGCAREERS@BU.EDU
WWW.BU.EDU/ENG/CAREERS