Instructor Information

Instructor(s)
Daijiang Zhu

Office Number
SEIR 323

Office Telephone Number
CSE

Email Address
daijiang.zhu@uta.edu

Faculty Profile
https://mentis.uta.edu/explore/profile/daijiang-zhu

Office Hours
Monday and Wednesday 11:30-12:30 PM
Because of the pandemic, students are encouraged to schedule online meeting via Teams

Course Information

Section Information
CSE6389-001

Time and Place of Class Meetings
Monday and Wednesday 1:00-2:20 PM
Modality: Fully Online Option 2

- All instruction and testing are online, but some synchronous online class attendance or participation is required.
- For the first class (08/26/2020 1:00-2:20 PM) and all the presentations by the students, all the students are encouraged to attend via Teams (synchronous).
- For a full definition of the course modalities, please go to https://www.uta.edu/academics/courses-and-schedules.

Description of Course Content
This course will introduce standard approaches to neuroimage analysis, including basic concepts of neuroimaging, basic algorithms, principles of software systems, and their applications.

Student Learning Outcomes
Understanding the neuroimaging related algorithms and machine learning approaches, implement some of them in the programming projects.

Required Textbooks and Other Course Materials
Atam Dhawan, Medical Image Analysis, Wiley-IEEE Press (Second edition)
S. Kevin Zhou, Hayit Greenspan, Dinggang Shen, Deep Learning for Medical Image Analysis (1st Edition)
**Descriptions of major assignments and examinations**
The programming project sets will be assigned in class and each student need to present the approach and results after finishing each project. Each student will also select 1-3 papers to read and present in class. All the presentations for projects and papers will be fully and deeply discussed in class.

**Technology Requirements**
- Online teaching tools: The synchronous content (e.g. student presentation) is via Teams (you will see a group named with our course number). The asynchronous content (e.g. recorded video) will be uploaded to Canvas.
- Webcam needed in synchronous lectures (e.g. the first class and the presentations).

**Grading Information**

**Grading**
Project sets. (50%)
Class presentations. (50%)
A (85~100)
B (70~84)
C (60~69)
D (<=59)

For example, if you have 80 (project) and 90 (presentation), your final score will be 80*0.5+90*0.5=85

*The grading information will be mentioned in the first class.

**Course Schedule**

| Week 1. | Wed Aug 26: Introduction |
| Week 2. | Mon Aug 31: Neuroimaging basics  
Wed Sep 2: Medical imaging modalities |
| Week 3. | Mon Sep 7: Brain anatomy  
Wed Sep 9: Brain structure and functional |
| Week 4. | Mon Sep 14: CNN introduction  
Wed Sep 16: CNN for brain imaging |
| Week 5. | Mon Sep 21: CNN variations in imaging analysis  
Wed Sep 23: CNN for image segmentation |
| Week 6. | Mon Sep 28: CNN for image segmentation  
Wed Sep 30: CNN for image classification |
| Week 7. | Mon Oct 5: GCN introduction  
Wed Oct 7: GCN application |
| Week 8. | Mon Oct 12: GCN for neuroimaging data  
Wed Oct 14: GCN for brain structural network |
Wed Oct 21: GCN for temporal graph |
| Week 10. | Mon Oct 26: GCN for temporal graph  
Wed Oct 28: GCN for image classification |
| Week 11. | Mon Nov 2: RNN introduction  
Wed Nov 4: RNN for fMRI analysis |
| Week 12. | Mon Nov 9: RNN for fMRI analysis  
Wed Nov 11: RNN for temporal data |
Week 13. | Mon Nov 16: RNN for temporal data  
| Wed Nov 18: RNN Applications with dynamic imaging data

Week 14. | Mon Nov 23: RNN for image classification  
| Wed Nov 25: No class

Week 15. | Mon Nov 30: Project Presentations  
| Wed Dec 2: Project Presentations

Week 16. | Mon Dec 7: Project Presentations

“As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Dajiang Zhu.”

Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutional-policies.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Mandatory Face Covering Policy

All students and instructional staff are required to wear facial coverings while they are on campus, inside buildings and classrooms. Students that fail to comply with the facial covering requirement will be asked to leave the class session. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center’s front desk or in their department. Students who refuse to wear a facial covering in class will be asked to leave the session by the instructor, and, if the student refuses to leave, they may be reported to UTA’s Office of Student Conduct.

Attendance

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I recommend all the students to attend the class via Teams (for synchronous lectures, presentations). However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must contain the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this
account, which remains active even after graduation. Information about activating and using MavMail is available at [http://www.uta.edu/oit/cs/email/mavmail.php](http://www.uta.edu/oit/cs/email/mavmail.php).

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit [http://www.uta.edu/news/info/campus-carry/](http://www.uta.edu/news/info/campus-carry/).

**Student Feedback Survey:** At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit [http://www.uta.edu/sfs](http://www.uta.edu/sfs).

**Final Review Week:** for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at [http://www.uta.edu/universitycollege/resources/index.php](http://www.uta.edu/universitycollege/resources/index.php).

**The IDEAS Center (2nd Floor of Central Library)** offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

**Emergency Phone Numbers**

In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381

**Library Information**

**Research or General Library Help**

Ask for Help
- **Academic Plaza Consultation Services** (library.uta.edu/academic-plaza)
- **Ask Us** (ask.uta.edu/)
- **Research Coaches** (http://libguides.uta.edu/researchcoach)

**Resources**
- **Library Tutorials** (library.uta.edu/how-to)
- **Subject and Course Research Guides** (libguides.uta.edu)
- **Librarians by Subject** (library.uta.edu/subject-librarians)
- **A to Z List of Library Databases** (libguides.uta.edu/az.php)
- **Course Reserves** (https://uta.summon.serialssolutions.com/#!/course_reserves)
- **Study Room Reservations** (openroom.uta.edu/)