

3D MORPHOMETRICS AND IMAGE ANALYSIS WORKSHOP

Location: Online as a Zoom Meeting (with breakout sessions).

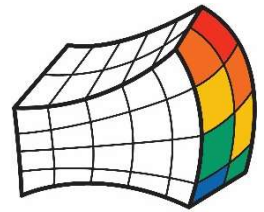
Course Dates: August 17-21, 2020

Course Website: https://SlicerMorph.github.io/2020_Summer_Workshop

Application deadline: July 21st, 2020 (11:59 PDT)

Online Application URL: <https://forms.gle/xYz1BfGPcijgeSZi9>

Admission notification: August 1st, 2020



SLICERMORPH

Target Audience: Course is directed for graduate students, post-docs and junior faculty who are interested in conducting quantitative research into organismal form and function using 3D imaging. It is also appropriate for more established researchers who are looking for open-source alternatives to the proprietary pipelines they have been using. We anticipate more applicants than we can accommodate. Applicants whose host institution lack such curriculum and/or resources might be given preference.

Course Contents and Structure: Due to change to online format, with shortened hours course will prioritize hands-on contents and computer labs over formal didactics. Labs will cover all aspects of conducting specimen-based research using 3D imaging. Practical topics (e.g., image processing and segmentation, visualization) will be taught using the open-source [3D-Slicer](#) visualization suite and the [SlicerMorph morphometrics toolkit](#) (statistical shape analysis) Additional lab topics include using 3D specimen repositories to obtain data, tools and methods for collaboration and reproducible research, introduction to data analysis through R/Python. Course material will be focused on volumetric (e.g., CT or microCT) 3D datasets, but will be equally applicable to data from 3D surface scanners. Tentative syllabus can be found in the next page.

Expectations from attendees: Each attendee should have a recent (last two years) laptop running Windows, Mac or Linux OSes (no netbooks or tablets). More information about computer requirements and how to [obtain the course software can be found at here.](#)

Logistics: Selected applicants will be notified by August 1st. Due to demand and limited number of participants we can accommodate online, we will prioritize applicants who can attend the whole session. Each day will start at 9.30 (PDT) and end around 2p (PDT) with a 20 minute break sometime in between sessions.

Course Fees: There is no course registration fee. This workshop and SlicerMorph project are supported by a collaborative research grant from the National Science Foundation Advances in Biological Informatics program (ABI-1759637, Adam Summers & Murat Maga).

Contact information: If you have any questions, please contact us at SlicerMorph@outlook.com and one of our course directors will respond to your inquiry.

Ready to apply? [Submit your application.](#) Please be prepared to give a short description of your research background, your career goals as they apply to this workshop, and a working email address. Email is the primary means we will be contacting you, so please make sure to enter correctly.

All times indicated are Seattle time (Pacific Daylight Saving), which is 7h behind UTC.

	8/17	8/18	8/19	8/20	8/21
9:30-11:30	Introduction Maga	Imaging Concepts Rolfe	GMM #1 Maga	SLICERMORPH (cont'ed) <ul style="list-style-type: none">Semi-landmarking<ul style="list-style-type: none">Curve-basedPatch-basedTemplate-based auto-landmarkingImporting data in R Breakout sessions for semi-LMs and template-based landmarking.	Setting up a lab Maga
	GETTING STARTED WITH SLICER & SLICERMORPH <ul style="list-style-type: none">Navigating UI, extension catalogue, Data and Subject Hierarchy,Sample Data module, loading data	3D VISUALIZATION <ul style="list-style-type: none">Volume RenderingLightingAnimationsMeasurements<ul style="list-style-type: none">LandmarksLinesAnglesPlanesCurves	SLICERMORPH <ul style="list-style-type: none">Review MeasurementsReview Sample DataGPA in SlicerMorphSuperimpositionPlots OutputsPCA Visualization		ODDS and ENDS <ul style="list-style-type: none">Landmark RegistrationCalculating model to model distance and heatmapsFlattening curved structuresImporting raw dataFinding support and using forum
11:30-11:50	Break	Break	Break	Break	Break
11:50-2:00	GETTING STARTED WITH SLICER & SLICERMORPH <ul style="list-style-type: none">VolumesImageStacksMorphoSourceImportModelsDICOMBrowserCropVolumeTransformsSaving dataCustomization	SEGMENTATION <ul style="list-style-type: none">Image GeometryMask vs LabelMap vs SegmentationSegment Editor and Segmentation toolsSplit/Mask VolumeSegmentEndoCraniumSegment StatisticsExporting/Importing SegmentationsPointers to segmentation recipesCustomizing .slicerrc.py for shortcuts and keystrokes	SLICERMORPH (cont'ed) Breakout sessions for GPA tutorial and collect your own data.	SLICERMORPH (cont'ed) GMM #3: Auto3DGM Boyer/Shan Lecture, demo and breakout sessions	Q&A and Breakout sessions
			GMM #2 Semi-LMs Rolfe		