

In Memoriam: Professor Dennis E. Slice

The Department of Scientific Computing, Florida State University, and the computational science and morphometrics communities mourn the death of our friend and colleague, Dennis E. Slice. Dennis suffered a cardiac event on Thursday morning, June 13, 2019 and died suddenly and unexpectedly at his home with his wife, Shannon, at his side. He was only 61.

Dennis began his academic career at the College of Charleston where he graduated summa cum laude with a Bachelor of Science degree. He received his Doctor of Philosophy from the State University of New York, Stony Brook. Following graduation and a postdoc, he took on teaching, administrative and managerial consultation roles before returning to university research and teaching duties at Wake Forest University School of Medicine. I first met Dennis when he gave a talk on geometric morphometrics here in spring 2007. He joined our faculty at the then School of Computational Science in 2008. He maintained an affiliation with the University of Vienna where he was Honorarprofessor in the Department of Anthropology; in that role, Dennis delivered



lectures and seminars in morphometric research, and mentored students.

Over three decades, Dennis contributed in many crucial ways to the development, dissemination, and innovative

application of many advanced morphometric methods. His early articles and reviews helped biologists appreciate the advantages of Procrustes analysis and its differences from other approaches beginning well before he earned

his doctorate. Recently, he and his students advanced novel landmark-free methods to analyze 3D image data with important applications in areas such as forensic anthropology

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rarely explored by academic biologists. Along the way, he developed a substantial body of widely used open-source software packages across the full range of his research interests.

Dennis contributed to the dissemination of morphometric methods through influential surveys, edited volumes, and symposia. Dozens of particularly noteworthy courses and scores of workshops helped expand the morphometrics community. Another significant contribution was his role as moderator of Morphnet, a primary news outlet and question forum through which he fostered the continuing advancement of skills in the morphometric community.

Through his creativity, Dennis expanded the range of applications of morphometric methods across many fields, including orthodontics, evolutionary biology, biomedical engineering, paleoanthropology, evolutionary psychology, protective clothing design, and marine biology. His funding sources were likewise diverse, ranging well beyond the usual list of sponsors of basic research to such institutions as the National Institute of Justice and the U. S. Army.

Dennis juggled a busy travel, teaching and research schedule, with students ranging from undergraduate to Master, and postdoctoral research associates. He also guided high-school students in their first research projects during the summer in the university's young scholars program.

Dennis was the 2017 recipient of the Rohlf Medal for Excellence in Morphometric Methods and Application, presented every two years to distinguished members of the morphometrics community. This honor is bestowed for outstanding work on the development of new morphometric methods or applications in medical sciences. The award ceremony took place at Dennis' alma mater, Stony Brook, after which Dennis delivered a keynote at the Provost's Lecture Series. His presentation was entitled, "An Unexpected Journey: A Curious Career in Shape Analysis." Interestingly, Dennis studied and worked with James Rohlf, for whom the award is named, while a research assistant at Stony Brook.

In addition to his research, teaching and community service contributions, Dennis stood out through his knowledge and generosity, his genuine desire to help students and fac-



ulty alike. He had an insatiable thirst for knowledge that went well beyond his field of study. He was a collector of the eclectic and did not conform to known metrics. He often roamed the hallways dressed in a three-piece suit and fancy leather shoes. In fact, he insisted that he could set me up to dress in a similar way. He brought depth to all his endeavors. For several years, he attended sessions at the University Senate, in which he participated vocally when required. Within a day, he would email the faculty extensive notes, which were much appreciated. In his work, he went for the unusual. He purchased a three-dimensional scanner to acquire data for a project involving the design of army helmets and to motivate students to volunteer to shave their heads for scanning, he led the way and shaved his own head! And he loved his role of Marshall at the FSU graduation ceremonies, enjoying the regalia and pomp, and exchanging anecdotes with the faculty and students in attendance.

An avid motorcycle devotee, Dennis loved his Harley-Davidson and the freedom of being on the open road. He could talk at length about his personal bike and its

Slice pictured at far right, with Ben Pomidor, Fred Bookstein and Detelina Stoyanova.

At left (opposite page), Slice pictured with colleagues and students (numbered) at a workshop.

features, other Harley models, competing brands, consumer satisfaction ratings for each brand, and more. He rode his bike frequently and enthusiastically, taking extended rides around the country.

Dennis was an expert storyteller, prone to digression. Every Scientific Computing affiliate at some time or another was part of his audience, held captive by his charm and intellect. On a somewhat regular basis, he would stop by my office to catch up; I invariably insisted I was busy. And yet, 30 minutes would quickly evaporate because his stories were so interesting.

Funeral services were held at 11am, Saturday, June 22, 2019 at Culley's MeadowWood Funeral Home on Timberlane Road in Tallahassee, where his longtime friend, mentor, and colleague Fred Bookstein gave the eulogy. He is survived by his beloved wife, C.

Shannon Call Slice, a brother, Vincent, and his parents, Olin D. and Retha Ann Slice. He was loved and respected by an extended family of uncles, aunts, and cousins, his Scientific Computing and morphometrics colleagues, and his two dogs, Sisi and André the Giant.

He was a valued colleague, mentor, teacher and friend who was unafraid to leave the trodden path. The world was his playground.

--- Gordon Erlebacher, Chair

A photo tribute is available at <https://photos.app.goo.gl/2e3LDi5RDvknRxv6> and at the site of the obituary, <https://www.dignitymemorial.com/obituaries/tallahassee-fl/dennis-slice-8744377>.



Tributes from Colleagues, Students



Slice and Katrin Schaefer at the University of Vienna.

The morphometrics branch of my research focuses on extending geometric morphometrics to include systems that have temporally dynamic shapes. For example, throughout the day the human body assumes several shapes as we perform different activities. The order that these shapes take and their relationship to each other have implications for human performance (e.g., how a golfer's swing impacts the distance her or his ball travels), ergonomics (e.g., how well safety equipment fits as the user moves), and functional morphology (e.g. how do the shapes that a fish's mouth assumes as it feeds differ across related species and diets), just to name a few.

Dennis was a pioneer on this topic. He described the first geometric morphometric technique to describe this kind of data in 1999 (geometric motion analysis), and his technique was the only such technique to incorporate the temporal order of shapes (as opposed to solely considering the elements in the set) until he and I described an alternative system in my dissertation work.

Dennis was truly a wonderful human being. I often felt that our relationship was less like that of an adviser and a student and more like family members. Every year that I lived in Tallahassee, Dennis and his wife, Shannon, had me over for Thanksgiving, and these dinners are among my happiest memories of the past decade. Losing him has taken an emotional toll on me, and I think all his students, that I think many scientists would not experience after losing an adviser.

One of the most important things I learned from Dennis on a professional level was how to interact with students and colleagues. Two major examples come to mind. First, like all advisers and students, Dennis and I were not immune to differences of opinion on research. However, unlike many advisers and students, Dennis was very tolerant of new ideas. For example, my dissertation was just flat out weird; some of the ideas I was putting forth were considerably different from what had already been brought up in the literature. Many advisers would be uncomfortable with that situation; I know because I ran into that problem with other researchers. Yet, Dennis was willing to let me explore new grounds, even when it made him uncomfortable.

Second, he did not let interactions in the intellectual realm influence relationships on a personal level. For example, when I went to his house for Thanksgiving, we almost never talked about work; there was no need to discuss it because we had an interpersonal relationship that existed outside of our work relationship. On some level, then, you would expect that this would not be a professional skill, but it really was. Since we had this kind of relationship, it was much easier for us to work together and resolve any differences of opinion, and this made me a much more successful student.

--- James Soda, Ph.D.
Assistant Professor of
Mathematics, Quinnipiac
University

I have never met a person with a more insatiable thirst for knowledge than Dennis nor have I met a more uniquely humorous, brilliant, and kind-hearted character than him. If ever anyone has lived life to its fullest it was Dr. Dennis E. Slice.

In the ten years I was lucky to know him I was always moved seeing how invested Dennis was in his students; no matter how prestigious the award, he always mentioned his students generously in his acceptance speeches. Dennis gave me the terrific opportunity to become his Postdoctoral Researcher after previously sitting on my dissertation committee and being a commencement marshal in his





Dr. Dennis Slice was many things to many people: one of the top minds in geometric morphometrics, a loving son and husband, a great friend, an encouraging mentor, and

regalia at my graduation (a tradition he loved very much and participated in annually). I was a physical anthropology student when I met Dennis but he accepted me as his own and I became a part of his Morphometrics Lab. I attribute my understanding and application of statistics and morphometrics in my anthropological and epidemiological research completely to him. Besides academics, Dennis also taught his students by example about humility, altruism, and how to enjoy life... and also to insert random segments about Martians into your dissertation drafts just to make sure your committee members are really reading it.

I have never met an individual with such a wide-reaching influence on people— across disciplines, countries, and demographics. He has inspired so many through his great work and his greatness of character has left a large hole in the hearts of those he was beloved by. Dennis will be missed sorely and I will cherish his memory always.

--- Kathryn Miyar, Ph.D., Chief,
Bureau of Archaeological
Research

an excellent teacher. The stories that have been shared since his passing have painted a picture of a globetrotting, larger-than-life character that seemingly knew everybody and had a tale for every occasion.

For me personally, Dennis started off as a spirit guide to the mystical realm of academia. I didn't know what to expect from graduate school before I found myself there, and had no idea what I would study until I met Dennis. His love and excitement for morphometrics was contagious (as much as multivariate statistics can be!) and I knew I wanted to work with the gentlemanly giant from Carolina after the first week in his class. There he gave me the project that grew to be the foundation for my dissertation.

After I joined his lab, Dennis took me and my fellow lab members on what I now realize was a privileged tour of academic life. At our first academic conference, the American Association of Physical Anthropologists meeting in Knoxville, Dennis was immediately recognized and swarmed by people from all over the world. I hadn't

understood how well-known and well-liked he was until that moment. His genial manner, time invested teaching morphometrics workshops in different countries, and summers spent lecturing in Vienna meant a friendly face at every turn. After hours, we'd have dinner with big-name physical anthropologists and statisticians, alternately charting out potential collaborations and listening to entertaining anecdotes from years past.

Despite his apparent academic fame, to us Dennis always remained humble and charitable with his time. A productive lab meeting followed by a lengthy trip to Bird's for burgers, beer, and good company was a Wednesday evening well spent. A testament to his dedication to his students: he was blessed with a tremendous beard and would let his morphometrics class pick the style for the semester. The mutton chops went especially well with his customary three-piece suit and Italian leather dress shoes, a clothing choice that seems to have rubbed off on several members of the lab. He was also a member of the faculty senate and a fixture at graduation ceremonies as a marshal, seeing these roles as part of his duty as a professor. I've attended several graduations at FSU, and it was always a delight to see him walking the floor in his ceremonial robes.

After my own graduation, Dennis and I published a paper together, which has garnered a small amount of attention in our field. I owe a lot of this to his contribution: a method to take the results of the surface-based geometric morphometric analysis I'd developed and visualize them using a combination of principal coordinate analysis and regression. It was during this

process that I truly came to appreciate his skill as a programmer and his adeptness with multivariate statistics and linear algebra. The extension and improvement of this project forms the basis for my dissertation, much of which I thankfully had the opportunity to share with him and his morphometrics class this past April.

I've been at FSU for a long time, and at some point during that time Dennis stopped being just a teacher or advisor and became a dear friend and mentor. He taught me so many things outside of the classroom, from the important stuff, like the value of networking, communication, and making yourself indispensable, to his own personal rules, like always looking at the data and dressing nicely, to the downright ridiculous, like never turning your back on a group of tapirs. Though I miss him, all of these lessons, and my fond memories of the man himself, will stick with me for the rest of my life.

--- Ben Pomidor, Masters Graduate/ Ph.D. Candidate

I first met Dr. Slice when I was a junior in college in 2013. I had just started the Computational Science major and was still on the fence about that or Computational Biology. I took his Geometric Morphometrics class in the spring of that year and it turned out to be one of the best classes I had ever taken.

His teaching style was very laid back but also encouraged inquiry and creativity, particularly with the final project each of us had to do for the class. Towards the end of that semester, Dr. Slice invited me to do research work in his lab. This was an opportunity I had been looking for, and I am forever indebted to Dr. Slice for giving me the chance to do research. That experience brought me into Computational Science where I have remained to this day.

Afterward, Dr. Slice became my mentor and eventually my graduate advisor. He was a wonderful mentor, was always kind and was there to offer help when needed. He pushed me to be independent and seek the answers to the questions I had on my own. His approach to advising was very hands-off and Socratic. Many questions

would be answered with another question -- that was designed to make me realize the answer myself. He was very flexible with my research and allowed me to investigate multiple different approaches. He would warn me away from infinite rabbit holes or long-trodden paths that led to nowhere though. He was always willing to share his advice and wisdom and did so readily and often.

Dr. Slice loved to tell stories; he had many of them from his travels and years of research. He'd often tell these stories in our lab meetings and in class. He never forced a rigid schedule or severe deadline unless it was absolutely necessary. He was always flexible with research work and meeting times. I worked for him as a teaching assistant twice; both times, Dr.



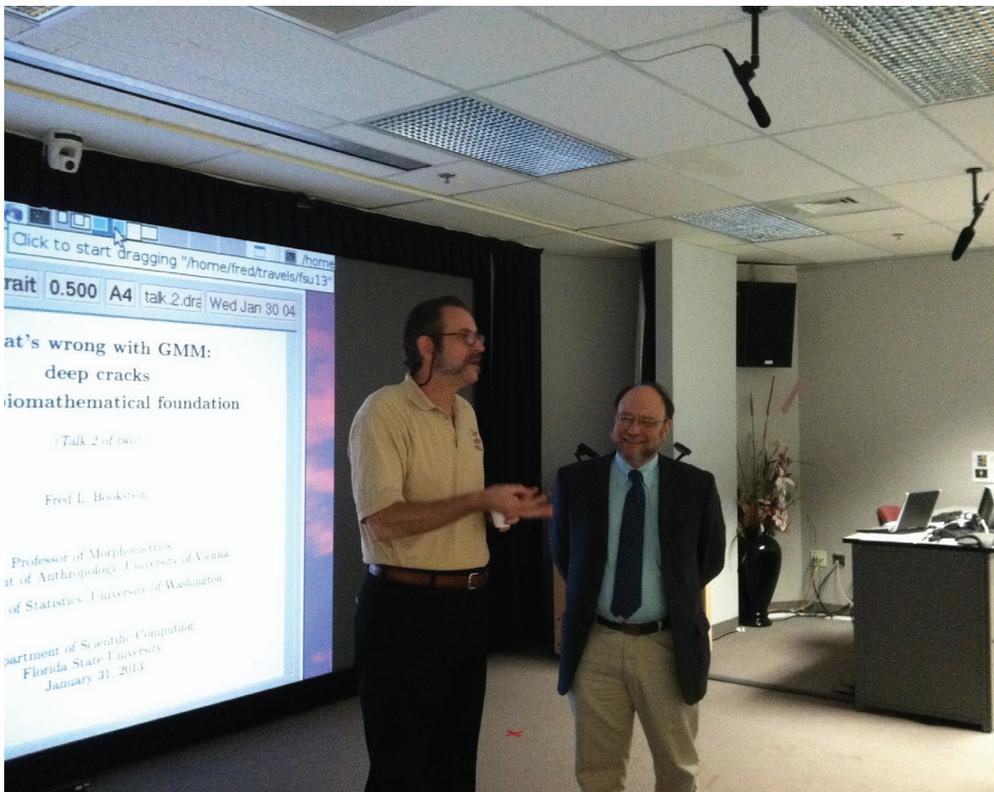
Slice was a wonderful boss. He never asked too much and was always flexible with my schedule. In all, Dr. Slice gave me the chance to get involved with research. He also helped me towards becoming an independent researcher and helped me to understand how academia, research and the field of morphometrics work in general. He was a great mentor and he will be missed.

--- Alex Townsend, Ph.D. Candidate. Townsend studies the patterns of geographic variation in animal vocalizations.

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Slice pictured at left, with Fred Bookstein. Bookstein gave a presentation of his research at the Department of Scientific Computing in 2014.

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