



Jeremy F. Jenrette

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EDUCATION

2014 – 2018 | **B.S in Biochemistry** | Virginia Polytechnic Institute and State University

2020 – Present | **PhD in Fish and Wildlife Conservation** | Virginia Polytechnic Institute and State University | Supervisors: Francesco Ferretti, Sara Khalid, Edward Fox, Eric Hallerman, and Leah Johnson | GPA **3.96**

PROFESSIONAL EXPERIENCE

CURRENT POSITIONS

- August 2020 – Present | **Graduate Teaching and Research Assistant** at Virginia Tech
Teaching: **Introduction to Natural Resources 1234** and **Adv. Fisheries Management 4714 and 5714G**
Research: Data science, population genetics, mechanical engineering, and machine learning for shark conservation and marine surveillance
- October 2023 and upcoming | **Instructor for Genetics Workshop** at Sousse, Tunisia (Virtual)
Instructing Master's Students (University of Gabes) on extracting and analyzing DNA from shark individuals
- August 2019 – present | **Graduate Research Assistant for sharkPulse** at Virginia Tech
Big data mining and data pipeline development, PSQL database management, and machine learning for shark conservation

RECENT POSITIONS

- May 2023 – September 2023 | **Webmaster for Virginia Tech's Fish and Wildlife Graduate Student Association**
Social outreach, web design, and media development
- May 2022 – September 2022 | **Computer Engineer for National Geographic and Ocean Exploration Trust**
Developing a web application for image recognition of shark species
- 2021 – present | **Aquaculture Manager** at Dillwyn, VA for **Virginia Tech Fish and Wildlife**
Capture fish, tag, and collect growth data. Perform mark-recapture studies for statistical analyses on abundance and distribution. Host and supervise fishing tournaments and educational outreach
- August 2018 – November 2018 | **Fishery Technician III at the Prince William Sound Aquaculture Corporation (PWSAC)** in Cordova, Alaska
Sampling salmon fertility and fecundity, compiling salmon health and abundance reports, and monitoring net production
- May 2016 – May 2019 | **Entomology Technician** at Virginia Tech
Cytogenetics, mastering intermediate and advanced molecular techniques including: DNA extraction, PCR, culture growth, and Fluorescent *in situ* Hybridization (FISH)

MENTORING

- 2023 – present | **Irvington Science Research Mentoring Program**
Mentoring Molly Fuchs on data mining techniques for shark conservation
- 2021 | Mentor for high school recipients of the Hutton Scholarship | **Hutton Program**
Hands-on teaching activities involving data science and drone operation
- 2020 – present | **Graduate Student Mentor** at Virginia Tech
Mentored Ocean Engineering and Computer Science Students: Zach Wendel, Katie Gilbert, Amritha Subramanian, Will Frankovich, Lauren Morris, Omar Kalbouneh, Aman Kothari, Mia Hagood, Tuan Tran, Patrick Warner

SKILLS

COMPUTER

Substantial computer literacy. Able to work in Windows, Mac OS X, and Unix/Linux operating systems. Knowledge of all Microsoft Office programs. Statistical programming, data science, and Natural Language Processing in R and Python. Mathematical programming in Matlab. Geospatial data processing in ArcGIS, R, and Google Earth Engine. Database management in PostgreSQL and MySQL. Document editing in Latex, Pandoc, and RMarkdown. Website and App development in Wordpress, Django, Gradio, and FastAPI. General language literacy in Python, Javascript, PHP, CSS, HTML, ROS, PX4, C++, Google Colaboratory, and Jupyter Notebook.

TECHNICAL

Experience in data science, molecular biology, and statistical modeling with emphasis on manipulating and analyzing large datasets. Proficient in written synthesis of research, interim reports, and experimental process. Experience with computer vision and developing machine learning models to detect and classify wildlife and vessels from visual media.

FIELD

Experience as deckhand, small boat/skiff operator, and handling marine animals (mostly salmon, sting rays, and various coastal fish species), and some experience with purse seining. Tagging, measuring, and weighing fish. Experience with recreational scuba diving and snorkeling surveying mussel populations in freshwater streams. Expedition experience in the Mediterranean Sea performing molecular analyses of sea-water samples, fishing for tuna, operating small to large unmanned aerial vehicles, and calibrating/deploying underwater cameras and processing visual media while at sea.

PUBLISHED

Jenrette, J.F., Jenrette, J.L., Truelove, N.K., Moro, S., Dunn, N.I., Chapple, T., Gallagher, A., Gambardella C., Schallert R., Shea B.D., Curnick D.J., Block B., and Ferretti, F. **Detecting white sharks in the Mediterranean with environmental DNA.** *Oceanography*. **2023.**

Jenrette, J., Z.Y.C Liu., Chimote P., Hastie T., Fox E., and Ferretti, F. **Shark detection and classification with machine learning.** Published in *Ecological Informatics*. **2022.**

Serena F., Abella A.J., Bargnesi F., Barone M., Colloca F., Ferretti F., Fiorentino F., **Jenrette J.**, and Moro S. **Species diversity, taxonomy, and distribution of Chondrichthyes in the Mediterranean and Black Sea.** Published in the *European Zoological Journal*. **2020.**

Palatini, U., Masri, R., Cosme, L., Koren, S., Thibaud, F., Biedler, J., Krstivevic, F., Johnston, JS., Rebecca, H., Crawford, JE., Antoshechkin, I., Failloux, A., Pischedda, E., Marconcini, M., Ghurye, J., Rhie, A., Cacccone, A., Sharma, A., Karagodin, D.A., **Jenrette, J.**, Gamez, S., Miesen, P., Sharakova, M., Zhijian Tu, Papathanos, P., Van Rij, R.P., Akbari, O., Powell, J., Phillippy A. M., Bonizzoni, M. **Improved reference genome of the arboviral vector Aedes albopictus.** Published in *Science*. **2020.**

IN REVIEW AND PREPARATION

Ferretti, F., Z.Y.C Liu, **J. Jenrette**, Z., Moro, S., Bargnesi, F., R. Haddock, S., Jorgensen, S., Hastie, T and Micheli, F. **SharkPulse: warehousing online media to take the pulse of global shark populations.** *In Review* at *Global Change Biology*.

Ferretti, F., Shea, B., Chapple, T., Gallagher, A., Gambardella, C., **Jenrette, J.**, Moro, S., Echwikhi, K., Schaller, R., and Block, B. **On the tracks of White Sharks in the Mediterranean Sea.** *In Review* at *Frontiers in Marine Science*.

Jenrette, J., Augustines, A., Ferretti, F., and Khalid, S. **Characterizing shark biodiversity at the Main Hawaiian Islands with baited underwater cameras and artificial intelligence.** *In Prep* for Summer, 2024.

Varini, F., **Jenrette, J.**, Wilday, S., Gayford, J., Ferretti, F., and Glocker, B. **Shark object-detection and tracking: a data sourcing and training study.** *In Prep* for Summer, 2024.

Jenrette, J., Z.Y.C Liu., Hastie, T., and Ferretti, F. **Data mining social media for tracking global shark populations.** *In Prep* for Fall, 2024.

REVIEWED

MacNeil, L., Joly, L.J., Maysa, I., Steinmann, A., Mehler, K., and Scotti, M. **Sizing mudsnails: Applying superpixels to scale growth detection under ocean warming.** 2024. Published in *Methods in Ecology and Evolution*.

Buchholz, M., Zhang, W., Meese, E.N., Yang, Y., Lowe, C., and Yeh, H-G. **Recurrent attentive kernel learning for shark activity recognition.** 2021. Published on GitHub.

2023 | Robert D. Ross Graduate Scholarship winner for the Virginia Chapter of American Fisheries Society \$750

2022 | Burd Sheldon McGinnes Fellowship recipient \$2,500

2022 | PADI, Scuba Certification, Open Water Diver

2021 | Part 107, FAA, Remote Pilot License

2021 | Virginia Department of Game and Inland Fisheries, Boating License

2020 | Virginia Tech, Best Poster: 1st Place for American Fisheries Society poster reveal

2018 | Virginia Tech, Certificate of Achievement for Excellence in Undergraduate Research

CONTRIBUTED
PAPERS

AWARDS,
POSTERS,
AND
PRESENTATIONS

2015, 2017, 2018 | Virginia Tech, Dean's List

2014 | Jim Gwiazdowski Scholarship recipient \$2,000

Jenrette, J.F., Jenrette, J.L., Truelove, N.K., Moro, S., Dunn, N.I., Chapple, T., Gallagher, A., Gambardella C., Schallert R., Shea B.D., Curnick D.J., Block B., and Ferretti, F. **Detecting white sharks in the Mediterranean with environmental DNA and particle distribution hindcasting.** *Presented at White Shark Global 2023 in Port Lincoln, Australia (in person).* November, **2023.** (Presentation and Poster)

Jenrette, J., Khalid, S., and Ferretti, F. **Artificial Intelligence for Shark Conservation!** *Presented for EVNautilus in partner with Ocean Exploration Trust and National Geographic (remote).* Oct, **2022.** ([Presentation](#))

Jenrette, J., Z.Y.C Liu., Chimote P., Hastie T., Fox E., and Ferretti, F. **Shark detection and classification with machine learning.** *Presented at Shark International in Valencia, Spain (remote).* Oct, **2022.** (Presentation)

Jenrette, J., Z.Y.C Liu., Chimote P., Hastie T., Fox E., and Ferretti, F. **Shark detection and classification with machine learning.** *Presented at Shark International in Valencia, Spain (remote).* Oct, **2022.** (Presentation)

Jenrette, J., Z.Y.C Liu., Hastie, T., Ferretti, F. **Data mining Instagram as a tool for tracking global shark populations.** *Presented at the Annual Symposium of the Fisheries Society of the British Isles.* Jul 6, **2021.** (Presentation)