GiulioStarace

Undergraduate Student

Home Address
Vicolo della Renella 95,
00153, Roma, Italia

Term Address
Rushford Court, North Road
DH1 4RY, Durham, UK

Phone
+39 334 953 2488
+44 774 352 1535

Mail
giulio.starace@
gmail.com
giulio.starace@
durham.ac.uk

Languages
Italian ★★★★★
English ★★★★★
Spanish ★★★☆☆
Japanese ★☆☆☆☆

Programming Languages
Python ★★★★★
Javascript ★★★★☆
Java ★★★☆☆
C / C++ ★★★☆☆
SQL ★★★☆☆
Haskell ★★☆☆☆
Prolog ★☆☆☆☆

Further Skills
Statistical Analysis ★★★★☆
Microsoft Office ★★★★★
LaTeX ★★★★☆
Linux ★★★★★
Git ★★★★☆

Blurb
I am an ambitious third-year Physics and Computer Science student at Durham University currently looking to gain professional experience in the world of tech after having caught a glimpse of physics research. In addition to the skills obtained through my studies, I offer a solid international background, having lived in 6 different countries throughout my life.

Education
2016 - 2019 **BSc in Natural Sciences with Computer Science and Physics** — Durham University, UK
The Natural Sciences degree allows candidates to build their degree combining modules from their two or three chosen departments. Through it, I am able to supplement the theory and more abstract material provided by a Physics degree with the practical skills offered by Computer Science.

First Year Results: Upper Second-Class Honours.
Second Year Results: First Class Honours.
Third Year Results: TBA June 2019.

2014 - 2016 **International Baccalaureate Diploma** — Marymount International School, Italy
Overall Result: 41/45 points.
Higher Level Subjects: Physics (7/7), Economics, (7/7), Maths (5/7).
Standard Level Subjects: Spanish (7/7), English Literature (6/7), Music (6/7).
Extended Essay: Physics, A.
Theory of Knowledge: B.

Experience
01/19 - 03/19 **Student Researcher** — Procter & Gamble, Durham/Newcastle, UK
Along with a team of 3 other Durham University Physics students, I was allocated as a student researcher to P&G's nearby research center in Newcastle. Specifically our assignment aimed to develop a method for simulating the dry abrsasion that occurs in clothing while being worn. The scope involved the development of an image-based measurement method coupled with the design of bespoke mechanical apparatus to be utilized for the reproduction of the dry abrasion mentioned above. Beyond the actual research, responsibilities involved communication within the team and with the client, as well as meticulous project planning.

08/18 - 10/18 **Research Intern** — ISAS/JAXA, Sagamihara, Japan
As part of the LIRA (Laboratory of InfraRed Astrophysics) team, I completed two projects over the course of 2 months. The first, *SaVisCas*, is a piece of software which, given orbital data and constraints, simulates the visibility of any point in the sky as seen by a satellite. This was built with ESA/JAXA's future mission SPICA in mind, but design also focused on extending the scope. The second project consisted in characterizing starburst galaxy NGC 253 via multi-parameter regression on a set of ro-vibrational infrared observations.

Familiar Technologies

Numpy	★★★★★
matplotlib	★★★★☆
OpenCV	★★★★☆
Node.JS (Express)	★★★★☆
Bootstrap	★★★★☆
JQuery	★★★★☆
SciPy	★★★★☆
PyTorch	★★★★☆
Flask	★★★☆☆
Pandas	★★★☆☆
Tensorflow	★★☆☆☆
Keras	★★☆☆☆
HEALPix	★★☆☆☆
WebGL	★★☆☆☆

where stars = familiarity/comfort

Further Experience

11/17 - Now **Website Manager** DUEM, Durham, UK

Durham University Electric Motorsport is the UK's most established solar car team entirely led and run by students. I am in charge of keeping duem.org up to date and bug free. This mostly involves handling aspects of WordPress and occasionally requires quick CSS, HTML and/or JavaScript tweaks.

06/18 - Now **College Football Captain** Van Mildert College, Durham, UK

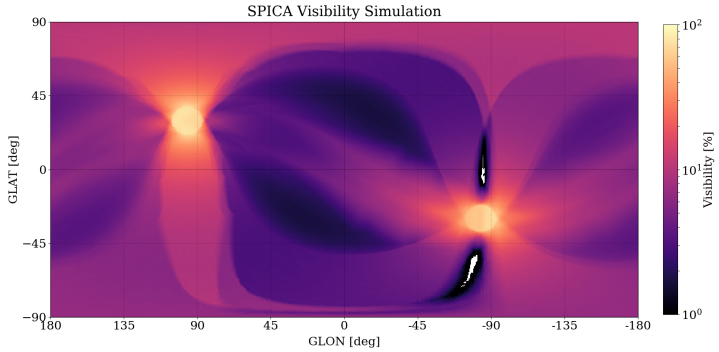
As college football captain I am in charge of leadership of my team, occupying myself with the organization of trainings, matches and payments for example. I also take care of more technical details such as squad lineups and formations, aswell as making substitutions throughout the match ensuring that the inner-club dynamics are maintained throughout.

07/17 - 08/17 **Volunteer Assistant** Operation Wallacea, Indonesia

I spent 4 weeks in the South-East Sulawesi region of Indonesia helping Biologists monitor the biodiversity and carbon levels of the region. Research mainly consisted in setting up transect lines along which we would either walk or swim recording fauna and flora traces along the way. The purpose of the research was to gather sufficient data for the establishment of biosphere reserves and obtaining REDD+ certification for the region.

Work Samples

One of the plots produced when working on *SaVis-Cas* at ISAS illustrating the visibility (percentage of days visible) of the night sky in galactical coordinates



Quick Screenshots of some of the plots produced in NGC 253 analysis.

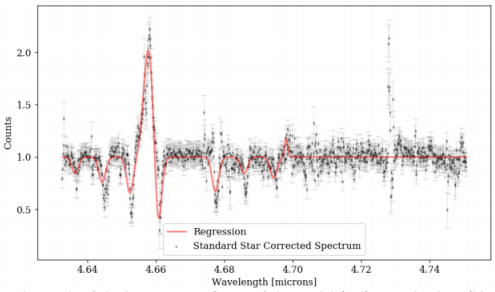


Figure 3: The result of the least squares fitting of the model (red) onto the data (black scatter) with roughly estimated error bars. A χ^2_{red} value of 388.81 was produced. Clearly we see a failure to properly model the majority of the absorption features, most notably P(2).

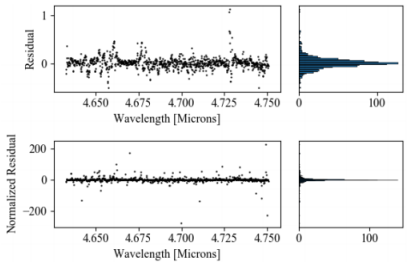


Figure 4: The residuals and normalised residuals of the model to the roughly estimated errors. Clearly a large portion of the data does not lie within 3 standard errors from the mean, indicating a faulty fit.