CHRISTIAN LARREA

Researcher & Programming Enthusiast

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ABOUT ME

I am an early-stage scientist with substantial experience in ultra-high vacuum technology, surface spectroscopy and microscopy. I pride myself on being a diligent and determined individual with strong work ethics. I am currently seeking an opportunity to develop my career.

EDUCATION

RESPONSIVE WEB DESIGN CERTIFICATION 300 h
FREECODECAMP, ONLINE
FEB 2021 – MAR 2021

PhD SURFACE CHEMISTRY
UNIVERSITY OF ST ANDREWS, GB
NOV 2013 – JUN 2018
Supervisors: Prof. Chris Baddeley & Prof. Manfred Buck

MSc CHEMISTRY, 2.1
UNIVERSITY OF LIVERPOOL, GB
SEP 2009 – JUN 2013
Supervisors: Prof. Richard Nichols, Dr Heike Arnolds & Prof. Andrew Hodgson

A-LEVELS, 9.1/10
IES JOSÉ FRUGONI PÉREZ, SP
SEP 2006 – JUN 2008

SKILLS

</> IT
Microsoft Office Package • LaTeX • Linux • Matlab/Octave • SQL • VBA • HTML5 • CSS3 Javascript • PHP • WordPress • Python • Numpy • Pandas • Scipy • Scikit-learn • Matplotlib • Seaborn • Blender • Gwyddion • Inkscape • Arduino • Raspberry Pi

TECHNICAL
TPD • LEED • AES • STM • RAIRS • HREELS • IR GC • UV/Vis • CV • Chronoamperimetry • XPS AFM • UHV • Maths & Stats • Data Analysis • Machine Learning

LANGUAGES
Spanish (Native) • English (Fluent) • Portuguese (Intermediate) • German (Beginner)

OTHERS
Oral presentation • Project Management • Problem- solving • Teamwork • Customer Service • Driving licence • EU Settlement • First Aid

WORK EXPERIENCE

Programmer | Freelance | Las Palmas, SP
Apr 2020 – Presently

- Developed a web-based interface for database querying combining HTML, CSS, JavaScript, SQL and PHP.
- Developed Python scripts for the automated generation of invoices for a haulage company.
- Created an e-commerce website with secure online payment and shipping by integrating the SumUp platform, Woocommerce and custom HTML CSS code into WordPress.
- Designed a console-based administration software for record-keeping and automated email notification tasks.

Data Analyst | XPS Pension Group | Belfast, GB
Jan 2020 – Apr 2020

- Extracted, processed and analysed sensitive client data.
- Developed, debugged and deployed VBA scripts and Excel formulas for modelling and visualisation of data.
- Researched pension schemes and legislation related to Guaranteed Minimum Pension equalisation.
- Reviewed new data collection protocols and liaised with requests from project management and client teams.

Resort Customer Helper | Jet2holidays | San Bartolomé, SP
Aug 2019 – Oct 2019

- Provided in-resort customer support to British holidaymakers concerning local amenities, accommodation, and transport.
- Achieved monthly turnovers of €4000 through sales of excursions, theme parks and shows tickets.
- Managed complaints, liaised with hotel management and mediated conflicts.
- Dealt with cash and credit card payments, reimbursements and liquidations.

Freelance Scientific Writer | Upwork | Telde, SP
Jan 2019 – Mar 2019

- Delivered high-quality pieces of academic writing intended for publication in scientific journals.
- Assisted researchers in reviewing and editing material science articles prior to submission to peer review.
- Liaised with publishers and clients to achieve project requirements and goals promptly.

REFERENCES

Ronan Donaghy
XPS Pension Group
1st Floor - Flax House 83-91 Adelaide St
Belfast, BT2 8FE, GB
ronan.donaghy@xafinityconsulting.com
+44 (0) 791 612 5995

Dr Grant Simpson
Universität Graz
8010 Graz, Heinrichstraße 28/IV, AT
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Prof. Chris Baddeley
University of St Andrews
School of Chemistry, Purdie Building
St Andrews, KY16 9ST, GB
cjb14@st-andrews.ac.uk
+44 (0)1334 467236

Post-doctoral Fellow | Queen's University | Kingston, CA
Sep 2018 – Jan 2019

- Appointed by Prof. J.H. Horton to lead the project on chemisorption of N-heterocyclic carbenes on silver films for plasmonic biosensing.
- Devised a contamination-free process for the adsorption of N-heterocyclic carbenes onto silver surfaces.
- Employed X-ray photoelectron spectroscopy, cyclic voltammetry, chronoamperometry and atomic force microscopy in the characterisation of self-assembled monolayers.
- Processed, modelled and fitted spectroscopic and voltammetric data on Matlab/Octave.
- Delivered comprehensive reports about the data collected, their interpretation and recommendations.
- Assisted technicians with their workload and troubleshooting.
- Mentored Master students in their research and dissertation writing tasks.
- Maintained a safe work environment by ensuring that routine laboratory work complied with health and safety regulations.

Graduate Researcher | University of St Andrews | St Andrews, GB
Nov 2013 – Jun 2018

- Engineered a protocol for the fabrication of surface-confined covalent organic frameworks onto gold-palladium alloys.
- Applied statistical tools in the quantitative description of surface nanoarchitectures.
- Demonstrated the in-vacuo adsorption of N-heterocyclic carbenes to gold and copper surfaces and the effect of substituents in their binding mode.
- Proved the reduction of a model copper oxide to metallic copper by the adsorption of N-heterocyclic carbenes.
- Authored scientific articles and patents.
- Presented results in conferences, school meetings and colloquia.
- Maintained, assembled and modified ultra-high vacuum equipment.

Laboratory Demonstrator | University of St Andrews | St Andrews, GB
Feb 2014 – Jun 2017

- Supervised Master students in their laboratory coursework and aided in data interpretation.
- Taught experimental physical chemistry techniques and assessed undergraduate students.
- Facilitated educational resources and provided private lessons.

PUBLICATIONS & PRESENTATIONS

2019

On-surface condensation of low-dimensional benzotriazole-copper assemblies. Nanoscale, 11(27), pp.13017-13031. Grillo, F., Batchelor, D., Larrea, C.R., Francis, S.M., Lacovig, P. and Richardson, N.V., 2019.

2018

Investigation of Robust Surface Molecular Architectures under Ultra-High Vacuum. PhD Thesis, University of St Andrews, Scotland, GB. Larrea, C.R., 2018.

2017

N-Heterocyclic Carbene Self-assembled Monolayers on Copper and Gold: Dramatic Effect of Wingtip Groups on Binding, Orientation and Assembly. ChemPhysChem, 18(24), pp.3536-3539. Larrea, C.R., Baddeley, C.J., Narouz, M.R., Mosey, N.J., Horton, J.H. and Crudden, C.M., 2017.

2016

Etching metal using N-heterocyclic carbenes. Patents: CA3026196A1, WO2017205980A1. Mariampillai, B.E., Alrashed, A.R.E., Crudden, C. M., Horton, J.H., Baddeley, C.J., Larrea, C.R., 2016.

Fabrication of a porous sCOF on a reactive surface. European Conference on Surface Science 32. Grenoble, FR. Larrea C.R., 2016.

Fabrication of a porous sCOF on a reactive surface. RSC Surface Reactivity & Catalysis Group. Glasgow, GB. Larrea C.R., 2016

Simple direct formation of self-assembled N-heterocyclic carbene monolayers on gold and their application in biosensing. Nature communications, 7(1), pp.1-7. Crudden, C.M., Horton, J.H., Narouz, M.R., Li, Z., Smith, C.A., Munro, K., Baddeley, C.J., Larrea, C.R., Drevniok, B., Thanabalasingam, B. and McLean, A.B., 2016.

Two-dimensional self-assembly of benzotriazole on an inert substrate. Nanoscale, 8(17), pp.9167-9177. Grillo, F., Torres, J.G., Treanor, M.J., Larrea, C.R., Goetze, J.P., Lacovig, P., Früchtl, H.A., Schaub, R. and Richardson, N.V., 2016.

Fabrication of a High-Quality, Porous, Surface-Confined Covalent Organic Framework on a Reactive Metal Surface. ChemPhysChem, 17(7), pp.971-975. Larrea, C.R. and Baddeley, C.J., 2016.

Metallosupramolecular Assembly of Cr and p-Terphenyldinitrile by Dissociation of Metal Carbonyls on Au (111). The Journal of PhysicalChemistry C, 120(2), pp.1049-1055. Anderson, A.E., Grillo, F., Larrea, C.R., Seljamäe-Green, R.T., Früchtl, H.A. and Baddeley, C.J., 2016.