



KTP RESEARCH ASSOCIATE

**CHROMA, AI BASED COLOUR RECIPE PREDICTION RESEARCH
PROJECT FUNDED BY THE VALSPAR (UK) CORPORATION
LIMITED (A SUBSIDIARY OF THE SHERWIN-WILLIAMS COMPANY)
AND INNOVATE UK**

Job Reference:	420252
Department:	Computing
Grade/ Salary:	Grade 6 £36,913
Contract Type:	Fixed term 24 months
Hours:	Full time
Location:	Remote working, Witney, New Cross

Closing date for applications: 17th July 2020

Interviews: Week commencing 20th/27th July 2020

VALSPAR

The Valspar (UK) Corporation Limited is part of The Sherwin-Williams Company, a multi-national manufacturer of paint and coatings based in Cleveland, Ohio in the USA. It is one of the largest paint manufacturers in the world, with over 50,000 employees and annual revenues of over \$15bn USD.

The Valspar (UK) Corporation Limited is engaged in the development, manufacture, distribution and sale of paints and coatings to professional, industrial, commercial, and retail customers. Revenue is generated from sales into major markets including decorative paints, caulks, sealants, varnishes and stains for home interiors and exteriors, and coatings for light metal packaging.

The company is one of several UK legal entities under the name Valspar or Sherwin-Williams that are all wholly owned subsidiaries of The Sherwin-Williams Company. In the UK, the group also generates revenue from paints and coatings sales into other major coatings markets including automotive, general industrial, industrial wood and protective and marine.

GOLDSMITHS

Goldsmiths, University of London is a world-leading centre of educational excellence where ground-breaking research meets innovative teaching and thinking. We're looking for inspiring and talented people to help build on our global reputation while also growing personally in a true learning organisation.

The Department of Computing is renowned nationally and internationally for its interdisciplinary research from a strong base in computer science. In RAE 2008, 20% of our submission was judged world-leading and 40% internationally excellent. The panel stated that the "inter-disciplinarity of the submission is strongly commended and contributes substantially to the diversity of UK research in this area." They went on to say that our outputs "demonstrated a body of research of a quality that is internationally recognised, internationally excellent and in a significant proportion of cases, world leading." Our research environment was described as "substantially of internationally excellent quality" and noted that "the strategic focus on the creative industries that contributed in very large part to a vital, sustainable and credible submission."

For more information about the Department of Computing please visit:
www.gold.ac.uk/computing. We are happy to supply information in alternative

formats for disabled applicants. Please contact hr@gold.ac.uk to make your request.



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and celebrating diversity.
Together, we are different



Together
we are different

JOB DESCRIPTION

Paints and coatings deliver protection and aesthetic value. To satisfy customers, paint companies require colour prediction tools that are efficient, fast, and accurate. This project aims to develop new AI tools enabling a breakthrough improvement in colour formulation capabilities. The Goldsmiths associate will specifically develop new 'neural network' based recipe prediction technologies.

The main responsibilities of the job will primarily be:

As a KTP Associate you will be responsible for the day-to-day management of the project, and report to the Local Management Committee (LMC) on a four-monthly basis. You will need to investigate and develop the research into the appropriate technologies for the project. You will design, implement and test the system and integrate this with extant systems at Valspar. You are required to fully document your system and provide appropriate benchmark analyses. Finally, you will be expected to organise your own personal development for which you are given a budget.

To achieve this, you will be supported in the first instance by an Academic Supervisor (Prof J. Mark Bishop) and a Company Supervisor (Steve Jenkins) to whom you should report and seek assistance when required. The role of the Academic Supervisor is to

assist you with the research side of the project. Similarly, the Company Supervisor will assist you on implementational issues and all matters pertaining to the company. For matters regarding your personal development and general KTP matters, you will be advised by a KTP Advisor (Dr Matthew Hogan) who you should meet with on a four-monthly basis (on the days of the LMC). Other key stake holders in the project will take an active role in supporting you and will be present at the LMCs; these include the Project Chairman (Klaas de Haas), Academic Support (Dr Daniel Stamate) and Programme Facilitator (David Kuper).

Your main place of work will be within the company, located in Witney, and you will be expected to become an active member of the development team and undertake other duties as may reasonably be required (without detriment to the overall project). You will also meet with your Academic Supervisor from Goldsmiths on a weekly or fortnightly basis. Your employment will be with Goldsmiths and you will be required to generally adhere to Goldsmiths standard working practices; these include:

- At all times to carry out your responsibilities with due regard to the College's Equal Opportunities Policy.
- At all times to help maintain a safe working environment by attending training as necessary and following the College's health and safety codes of practice and policy.

As you will be based at The Valspar (UK) Corporation Limited premises at Witney, Oxfordshire, you will also need to abide by Valspar and Sherwin-Williams's policies and procedures. In the event of any conflict, this should be raised with your Academic and Company Supervisors in the first instance.

This is a challenging project with substantial investment being made. The right candidate will either already have a PhD or be keen to exploit the learning opportunities and take advantage of the commercial experience. The project is well suited to form the core of a PhD, and support will be given for the successful candidate wishing to pursue an MPhil/PhD programme based on the project. In addition to this, you will be encouraged to register for NVQ Level 4 in Management and attain membership of relevant professional organisations.

KNOWLEDGE TRANSFER PARTNERSHIPS

Knowledge Transfer Partnerships (KTPs) support the partnership between business and universities or research organizations, placing graduates (KTP Associates) to work on challenging, high profile projects. Benefits from participating in a KTP scheme include

- Accelerating your career
- Gaining valuable experience and making a contribution
- Earning a good salary
- Receiving practical and formal training and gain marketable skills
- Benefiting from the support of academic experts and KTP Advisers
- Enjoying an excellent chance of a permanent post with the company

Funding has been awarded for a Knowledge Transfer Partnership between Goldsmiths, University of London, Department of Computing and The Valspar (UK) Corporation Limited. This two-year project concerns the development of an AI-based colour recipe prediction system. The company and role are based in Witney, Oxfordshire.

THE PERSON

You should have at least a 2-1 bachelor's degree or higher degree but ideally a Phd. You should have a good aptitude for and interest in colour physics, artificial intelligence, artificial neural networks and computer programming, and be able to demonstrate a strong technical and academic background. You will be flexible and self-motivated and be able to organise and manage your own day-to-day activities. An enthusiastic and proactive outlook will be an asset.

Candidates with various experience will be considered provided sufficient aptitude and potential can be shown. However, the candidate must be at the beginning of their career to satisfy KTP requirements.

Additional duties:

- Communicating effectively with other staff

- Participating in various forms of public engagement, working with Goldsmiths' communication team where appropriate
- Attending staff development, as needed, to develop research skills
- In addition you will be required to undertake any other duties as may reasonably be required;
- At all times to carry out your responsibilities with due regard to the College Code on Equality and Diversity/Dignity at Work Policy;
- At all times to help maintain a safe working environment by attending training as necessary and following the College's Health and Safety Codes of Practice and Policy

PERSON SPECIFICATION

Detailed below are the types of qualifications, experience, skills and knowledge which are required of the post holder. Selection will be made upon evidence of best-fit with this criteria.

The Essential criteria sections show the minimum essential requirements for the post, therefore if you cannot demonstrate in your application you meet the essential criteria categorised below, you will not be invited to interview.

The Desirable criteria sections show additional attributes which would enable the applicant to perform the role more effectively with little or no training.

The Category column indicates the method of assessment:

A = Application form C = Certificate
I = Interview R = Reference
T = Test / P = Presentation

	Category
Essential Criteria 1 - Qualifications	
Undergraduate degree in a relevant discipline	A, C, I
PhD or equivalent research experience in a relevant discipline	A, C, I
Essential Criteria 2 - Experience	
Experience of working and conducting research with a range of stakeholders; capability to deliver research software into production	A, I, R
Essential Criteria 3 - Knowledge	
COLOUR PHYSICS – colour recipe prediction (inc. radiative-transfer theory & Kubelka-Monk); colour spaces; light and reflectance spectra).	A, I, R
ARTIFICIAL INTELLIGENCE – Swarm Intelligence and Optimisation (SDS, Genetic Algorithms, PSOs); Dimensionality reduction – PCA & ICA; Artificial Neural Networks (inc. Multi-Layer Perceptrons; Deep Neural Networks [inc. Tensor Flow & Keras]; Reservoir Computing and Extreme Learning Machines; LSTM; Ensembles; Generative methods including GANs	A, I, R
Essential Criteria 4 - Skills	
Computer Programming – to include: Python, Tensor-Flow/Keras & MATLAB.	A, I, R
Ability to work independently	A, I, R
Good teamworking skills	A, I, R
Good communication skills	A, I, R
Desirable Criteria 4 - Skills	
Ability to communicate research effectively to people from a wide range of disciplines	A, I, R

Please also note that where qualifications are required, employment is conditional on the verification of them. Qualifications (must be original documents) will be checked on the first day of appointment.

For more information about the role, please contact Mark J. Bishop, M.bishop@gold.ac.uk

SUMMARY OF BENEFITS

If you choose to work with us, you'll become part of a learning organisation that is committed to professional and personal development, with a comprehensive and innovative staff development programme.

You'll also have access to frequent lunchtime and evening talks, seminars and performances, and annual performance and development reviews.

Our other benefits include:

- Competitive salary
- On-site cinema, Curzon Goldsmiths, with staff discounts and special screenings
- Excellent annual leave entitlement plus additional closure days at Christmas and Easter
- Membership of USS or LPFA pension scheme, dependent upon grade
- Access to exclusive discounts, including high street retailers
- Maternity, paternity, shared parental leave and adoption leave and pay and tax efficient childcare voucher scheme
- Contractual sick pay provision
- Free eye tests
- Wellbeing initiatives including the Chaplaincy and Staff Choir
- On-site [dining facilities](#)
- Access to [University of London facilities](#) such as Senate House Library

Further information

For more information about Goldsmiths, please visit: www.gold.ac.uk/about.

We can supply information in alternative formats for people with a visual impairment or dyslexia. For this please contact hr@gold.ac.uk, or visit www.gold.ac.uk/hr.

Thank you for your interest in working with us, we wish you all the best with your application.