

Job title:	Expensive-Optimization for Bioprocessing (KTP Associate)
Salary:	Grade 6
Start/duration:	Tenable immediately for 13 months fixed-term
Probation period:	6 months £32,236 to £39,609 per annum (according to relevant experience) plus £4000 personal training and development budget
Based at:	Biopharm Services Ltd, Chesham, Bucks, HP5 1SD
Responsible to:	Dr Richard Allmendinger, Lecturer in Data Science at the Alliance Manchester Business School and a nominated Industrial Supervisor from Biopharm Services Ltd.

Overview of Biopharm Services Ltd

Biopharm was founded in December 1998 to develop technology solutions and services for the biopharmaceutical manufacturing business, covering biologic products, facilities and strategy. The company is the developer of BioSolve, the biopharmaceutical industry's most powerful set of bioprocess analysis tools. The BioSolve product range enables biopharma innovators to reduce manufacturing costs and make informed process decisions to improve profitability and ultimately patient access.

Saving our clients millions every year, BioSolve products provide standardised, impartial and industry-wide information across organisations, helping biopharma companies rationalise and de-risk their business decision-making.

Unlike in-house systems, BioSolve accesses information from across the biopharmaceutical sector to deliver impartial knowledge and advantage

For further information please visit <https://biopharmservices.com/>

What is a KTP?

Knowledge Transfer Partnership (KTP), a government funded scheme brings together universities and businesses to work jointly on a development project that is strategically important to the future of an organisation. Throughout the project the KTP Associate will play a key role in managing and implementing strategic development in the business and transferring knowledge between the University and the Company. The KTP Project is delivered by an Associate supported by a company and academic supervisor and is managed by monthly progress meetings and through the Local Management Committee (LMC) which meet every four months. Associates are expected to prepare an executive summary and make a formal presentation on progress for the LMC meeting. The academic knowledge will be provided by Dr Richard Allmendinger from the Alliance Manchester Business School, an expert in application of simulation, optimisation and machine learning techniques. Prof Josh Knowles, an expert in the areas of evolutionary computation, machine learning, and multi-objective optimisation will act in a support role. Throughout the KTP you will;

- Receive a competitive salary
- Gain excellent experience of managing a high profile project
- Receive formal management training
- Have access to a £4,000 professional development and training budget
- Receive mentoring and support from academic staff and industry professional

Further information about KTPs and the advantages of being a KTP Associate can be found at <http://ktp.innovateuk.org/> or <http://www.manchester.ac.uk/collaborate/business-engagement/knowledge-exchange/transfer-partnerships/>

Overall Purpose of the Job

To extend the functionality of Biopharm Services' existing product platform by incorporating a unique process optimisation algorithm which will enable customers in the biopharmaceutical target market to develop optimised bioprocesses, and reduce prices of the biologic drugs they are looking to bring to market. Technically speaking, the goal is to develop and apply algorithms (a particular interest lies in Bayesian optimization algorithms) for computationally expensive black-box optimization problems.

The project has the following stages:

1. Familiarisation with Biopharm Services' business and technology.
2. Review of optimisation algorithms for computationally expensive problems with particular focus on Bayesian optimization algorithms.
3. Software development: Implementation of optimisation algorithms capable of dealing with expensive evaluations, constraints, a mix of continuous and discrete (categorical and ordinal) variables, multiple objectives, and uncertainties.
4. Internal and external testing and validation of BioSolve's new optimisation capabilities.
5. Dissemination, handover and final reporting.

After the completion of this project, there is a possibility of continued employment at Biopharm Services in a full time permanent position.

Key Responsibilities, Accountabilities or Duties

The range of duties will include:

- Undertake research project (preparing, setting up, conducting and recording the outcome of experiments and field work, the development of questionnaires and conducting surveys).
- Conduct literature and database searches to support project.
- Write up results of own research project, and contribute to the production of publications.
- Contribute to the planning of projects.
- Present information on research progress and outcomes to bodies supervising project
- Liaise with colleagues and support staff on routine matters.
- Provide guidance as required to support staff and any students who may be assisting with the project.
- Actively participate as a member of the project team, and attend and contribute to relevant meetings.
- Make use of standard research techniques and methods.
- Deal with problems which may affect the achievement of project objectives and deadlines.
- Contribute to decisions affecting the work of the team.
- Analyse and interpret the results of own development work and generate original ideas based on outcomes.
- Plan own day-to-day work activity within the framework of the agreed programme.
- Co-ordinate own work with others to avoid conflict or duplication of effort.
- Continue to update knowledge and develop skills.

PERSON SPECIFICATION

Essential:

- PhD Degree OR a good MSc and relevant working experience in a quantitative subject such as computing, mathematics, statistics, physics or engineering.
- Specialist knowledge in the discipline of machine learning (with Gaussian processes) or computationally expensive optimisation and/or experience in developing and applying algorithms to problems with constraints, multiple objectives, mixed typed variables, and uncertainties.
- Excellent software development skills
- High proficiency in Python with at least one programming language (e.g. C/C++, C#, R)
- Excellent communication and interpersonal skills
- Excellent time management and organisational skills
- Ability to work independently and as part of a team
- Willingness to learn and develop
- Ability to liaise confidently and effectively with a range of individuals
- Flexible approach to dealing with research problems as they arise
- Ability to meet deadlines
- Strong journal publication record
- The ability to evaluate complex data
- Willingness to relocate to Chesham or nearby travel between to Manchester occasionally as required
- Ability to present in both written and oral publications

Desirable:

- Experience of software development on Microsoft platforms and Cloud Computing infrastructure (and other parallel platforms)