Tom Lodge

Research Fellow, Full-stack developer

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I am a Research Fellow and developer at Nottingham University. I have worked on a broad variety of projects, with a wide range of industrial partners and have built up expertise in technologies right across the stack. My doctorate investigated the utility of ad-hoc, short-range (Bluetooth) networks for large-scale data collection. I love frontend work and my most recent project has involved the design and implementation of an online IDE for constructing privacy preserving IoT apps (React Redux and Docker). You can see examples of my work at https://tomlodge.info/sc

Recent projects

IoT Databox EPSRC Funded — 2016-present

This project is developing a clean-slate privacy-focused infrastructure to provide users with full control of their personal data. It is principally focused on IoT data; the number of devices that capture and record information about us is expected to rise to unprecedented levels, creating challenges around privacy and data liability. The project is a collaboration with ***Cambridge University***, ***Imperial College*** **and various industrial partners.** I have developed an online IDE for constructing privacy preserving apps.

Buttonkit Early Stage Startup — 2016-present

I am a developer for an early stage startup and have built a platform that supports residents living in high rises. The platform has an Android and iOS app (React Native) and a Nodejs backend. It also has a web-based graphical authoring system (React/Redux) for building functionality that can be immediately deployed to our Buttonkit app. The infrastructure is fully Dockerised and runs on of Kubernetes. I am responsible for all design, coding and infrastructure development.

User Centric Networking European Union Funded — 2014-2016

This project was a multi-institution collaboration (***Technicolor, Eurecom, Fraunhofer, Intamac, University of Cambridge, University of Nottingham, Martel Consulting, Inria, Portugal Telecom***) that is developing content and recommendation systems based upon user networking behaviour. In collaboration with ethnographers, I have built data visualisation tools (d3.js) that support detailed analysis and tagging of network data being collected in households across France and the UK.

Communities in the Clouds Research Councils UK Funded — 2014

I ran a pilot project in collaboration with ***Microsoft Research*** that investigated the role that technology might play in supporting residents living in high-rise and high-density communities. The project was composed of several strands: data analysis and visualisation (of forum data), ethnography and a workshop with industry professionals. One exciting outcome from the project has been the chance to run technology trials in a large flagship East London housing estate.

Becoming Dataware Horizon Digital Economy Funded — 2012-2014

This project investigated how users might take greater control and ownership of their 'digital footprint' by considering a locally controlled hosted and managed personal data store that

permits constrained queries by third parties (energy companies/supermarkets etc). I developed and extended code (python) to create a proof-of-concept home router that collected energy and network data which could be interrogated by (OAuth) permitted third parties. The software ran on a small form factor, Linux arm computer (dreamplug).

Homework EPSRC Funded 2009-2012

A four-year, five-institution (***Nottingham, Imperial, Glasgow, Nottingham, Microsoft and BT***) collaboration looking at the design and provision of tools to improve support for home networking. I was part of a team that built a Linux router (running Nox/Open vSwitch) and developed two iphone/ipad apps that supported novel visualisation and control of a local home network.

Employment

University of Nottingham Horizon Digital Economy 2013-current

Research Fellow

Queen Mary, University of London Open & Distance Learning 2002-2005

Research Fellow

University College London Networks and Multimedia Research 2000-2002

Research Fellow

Education

University of Nottingham Phd 2007-2012

Opportunistic Data Collection in People Centric Sensor Networks

University College London MSc 1999-2000

Data Communications Networks and Distributed Systems

Award: Distinction

Queen Mary, University of London BSc 1996-1999

Computer Science

Award: First Class, Drapers Award for *'outstanding academic achievement'*

Key Tech Skills

Frontend	Backend	Devops
react/redux	node.js	amazon EC2
react native	python (flask)	heroku
d3	jekyll	docker
	python	kubernetes (a little)
ios (Objective-C)		nginx
android (Java)	mysql	
	postgresql	
css, sass, less	mongoDB	
webpack	neo4j	

see: http://github.com/tlodge

Publications

Urquhart, L., Lodge, T. and Crabtree, A. (2018) **Demonstrably doing accountability in the Internet of Things**, International Journal of Law and Technology.

Lodge, T., Crabtree, A. and Brown, A. (2018) **IoT app development: supporting data protection by design and default**, Proceedings of the 2018 Joint Conference and International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers, pp. 901-910, Singapore, ACM Press.

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Goulden, M., Tolmie, P., Mortier, R., Lodge, T., Pietilainen, A.K. and Teixeira, R., 2018. **Living with interpersonal data: observability and accountability in the age of pervasive ICT.** *New Media & Society*, *20*(4), pp.1580-1599.

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Mortier, R., Zhao, J, Crowcroft, J., Li, Q., Wang, L., Haddadi, H., Amar, Y., Crabtree, A., Colley, J., Lodge, T., Brown, A., McAuley, D. and Greenhalgh, C. (2016) **Personal data management with the Databox: what's inside the box?**, Proceedings of the ACM Workshop on Cloud-Assisted Networking, pp. 49-54, Irvine, ACM.

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Crabtree, A., Rodden, T., Tolmie, P., Mortier, R., Lodge, T., Brundell, P. and Pantidi, N., 2015. **House rules: the collaborative nature of policy in domestic networks.** *Personal and Ubiquitous Computing, 19(1),* pp.203-215.

Lodge, T., Rodden, T. and Mortier, R., 2013, September. **Communities in the clouds: support for high-rise living.** *In Proceedings of the 2013 ACM conference on Pervasive and ubiquitous computing adjunct publication* (pp. 829-836). ACM.

Mortier, R., Houghton, R., Skatova, A., Wagner, C., Lodge, T., Shao, J., Goulding, J., Madhavapeddy, A. and Crowcroft, J., **Becoming Dataware.**

Skatova, A., Johal, J., Houghton, R., Mortier, R., Bhandari, N., Lodge, T., Wagner, C., Goulding, J., Crowcroft, J. and Madhavapeddy, A., 2013. **Perceived risks of personal data sharing.** *Proc. Digital Economy: Open Digital* (Nov. 2013).

Lodge, T., 2012. **Opportunistic data collection in people-centric sensor networks.** (Doctoral dissertation, University of Nottingham).

Mortier, R., Rodden, T., Tolmie, P., Lodge, T., Spencer, R., Sventek, J. and Koliousis, A., 2012, October. **Homework: Putting interaction into the infrastructure.** *In Proceedings of the 25th annual ACM symposium on User interface software and technology* (pp. 197-206). ACM.

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Lodge, T. and Radenkovic, M., 2007, March. **Towards mass scale environmental monitoring by the public.** *In Proceedings of the Third IASTED European Conference on Internet and Multimedia Systems and Applications (pp. 69-74).* ACTA Press.

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