

**THEME: Debordering and Rebordering in Cyberspace: Technological, Legal and Political Aspects**

**PROJECT: Cyberborder Development, Defence and Penetration: Technological and Governmental Aspects**

**Lead Supervisor:** [Professor Cathal McCall](#)

**Supervisory Team:** [Professor Cathal McCall](#), [Professor Sakir Sezer](#), [Professor Hastings Donnan](#)

**Primary Location:** Mitchell Institute

This PhD will combine research on the technological development of cyberborders with the efforts of state governments to defend and penetrate them.

Firewalls, network-based application and user detection technologies, as well as URL black and white lists present essential technological tools for building borders in cyberspace and preventing cross-border access to web-content. However, new technologies, based on well-established Virtual Private Networks (VPNs), and new VPN service providers (CyberGhost, Spotflux, Private Internet Access, Hotspot Shield, ProXPN, etc.) have evolved, providing encrypted anonymous tunnels, capable of penetrating virtual borders and providing anonymous access and hosting of unrestricted content via a country specific proxy server. Defending cyberspace borders for the protection of critical infrastructure, key resources and sensitive information is a key concern for governments. Yet, as the Edward Snowden case revealed, state governments are also deeply implicated in acts of penetrating cyberspace borders for the purpose of information-gathering on friend and foe alike. Similarly, international corporations have a vital interest in securing internal networks, as well as a research and development compulsion to penetrate the cyberborders of competitors in the name of innovation.

This PhD will have 4 key stages:

- At the outset, the research will chart the development and management of cyberspace borders by selected states in the contexts of technology and government policy;
- It will then examine the evolution of VPNs and service providers in the context of the provision of encrypted anonymous tunnels that penetrate cyberborders;
- It will consider the political implications of a policy of cyberborder penetration by governments for the purposes of espionage.
- Finally, it will assess the prospects for integrated cyberborder management systems between 'friendly' states.

The PhD will include a 3 month research internship with GCHQ or I-BOC.

**Primary Academic Discipline:** Border Studies