CARL NICOLAS HARTSHORN

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EDUCATION:

MSci (Hons) Computer Science (with Industrial Experience) – Lancaster University: 2012 to 2016
First-class with honours
- Received two additional awards for performance.
- Studied modules including:

  - Advanced programming (**Java**, **Erlang**, **Python**)
  - Operating Systems (**C**)
  - Databases (**SQL**)
  - Artificial Intelligence (**Matlab**)
  - Languages and Compilation
  - Advanced Internet and Mobile Applications

- Third Year Project:
  - Developing a Suggestive Interface for 3D Modelling (**C++** and **OpenGL**)
- Fourth Year Dissertation:
  - Added functionality to Gaist's core web application to allow for map geometries to be exported in AutoCAD format (DXF), and for geometries in DXF files to be imported into the web application.

King Edward VI High School Stafford: 2004 – 2011
- 2011 A Level: Chemistry (A), Computing (A), Physics (A)
- 2010 AS Level: Mathematics (B)
- 2009 GCSE: 12 subjects grades A* - B including Mathematics (A*) & English (A)

EMPLOYMENT:

Full Stack Developer: Purplebricks
June 17 – Present
- Got up to speed with the Purplebricks monolith solution within weeks of starting and immediately began contributing to development for the US launch.
- Worked in the squad owning the Book Valuation, Payment and Login / Registration domains, contributing to the development of new features, and to breaking down the legacy monolith application into a service oriented architecture.
  - Gained experience in developing **microservices**, including use of **.NET Core** & **ASP.NET Core**.
  - Used **Azure Service Bus**, for the decoupling of these services using events.
  - Followed the **event sourcing** pattern for the reliable publishing of events on state change.
  - Created resources in **Microsoft Azure** using **Azure Resource Templates**.
  - Employed **continuous delivery** of microservices using VSTS Build Definitions and **Octopus Deploy**.
  - Monitored microservices using a monitoring stack based on **StatsD** and using **Grafana** dashboards.
- Gained experience integrating with third parties, including Rightmove.
  - Migrated the Rightmove performance scheduled **Web Job** away from Rightmove's legacy export system to their new real time data feed API.
- Built upon experience with **NoSql** databases, specifically **Azure Cosmos DB**.
- Gained experience with **React** and **Redux** when developing micro front-ends in the Book Valuation and Marketing Preferences domains.
- Gained exposure to the **OpenID Connect** specification when using **Auth0** for user authentication.
  - Worked towards introducing **Bearer authentication** support using **JWT tokens**.
- Took part in Purplebricks' first hackathon, implementing a chat bot for carrying out property searches via natural language text or speech input.

Trainee Software Developer: Enable
July 16 – June 17
- Contributed to a number of different ongoing client projects, furthering technical and organisational skills.
    - Used **TFVC** for source control and **Visual Studio Team Foundation Server** for **Continuous Integration**.
    - Gained experience using **Octopus Deploy** for automated deployments.
    - Worked with **Microsoft SQL Server**, using **Entity Framework** as an ORM and focussing on **performance** in particular.
    - Employed **TDD** and developed both Unit and Integration tests, using **xUnit**, **Moq** and **AutoFixture**.
    - Furthered **TypeScript** experience, following the **MVVM** pattern and using **Knockout.js** to create and bind view models.
    - Developed cross-browser user interfaces using **SASS** for styling and with a focus on **UX**.
- Made a number of suggestions to further the technologies used at Enable.
    - Use of **AutoMapper**, particularly for projecting desired columns from EF queries.
    - Took knowledge and experience from MSci placement to suggest use of **RabbitMQ** and **Topshelf**.
        - Researched both technologies with respect to Enable's development and deployment processes, creating a proof of concept solution for a Background Processing service.
        - Presented this proof of concept to the project lead, and implemented the service on project.
        - Extended Enable's use of **SignalR** to allow real-time progress updates from the Background Processing service to the browser.
- Received training time focussing on a number of varied topics, including: ASP.NET Core, Gulp.js, HTML5 APIs, jQuery Validation, PowerShell, Redis, and Software Design patterns.
- Received excellent feedback with regards to pace of work and technical contribution.

MSci Industrial Placement & Dissertation: Gaist Technologies
January 16 – June 16
- Converted standalone console application to a Windows Service integrated into Gaist's core web application.
    - Implemented a long running task queue using **RabbitMQ**.
    - Utilised **Topshelf** for development and debugging of a Windows service consuming from the queue.
- Built "Export to DXF" functionality upon this long running task framework:
    - Implemented lasso style selection of geometries to export from a map using **Leaflet.js**.
    - Used **MongoDB's** geospatial queries to select geometries within the specified area.
    - Studied AutoDesk's DXF **File Format Specification** and used the netDxf library to generate and load DXF files.
    - Implemented DXF file import, including geometry reconciliation and identification of new geometries.
- Built upon JavaScript experience when using **Angular.js** and **TypeScript**.
- Further developed **C#** and **.NET** experience, employing **NetTopologySuite** when working with geospatial information and geometries.
- Gained further organizational experience using **Git** for source code management, and **Visual Studio Team Foundation Server** for collaboration.
- Worked in an **Agile Development** environment, attending sprint meetings and daily scrums.
- Following the placement, the Managing Director invited me to work on a separate project.
    - Undertook this project over the Easter break, taking full ownership of the project and building the solution from the ground up.
    - Received positive feedback from the Head of Highways Maintenance at the Department for Transport.

C# ASP.NET Developer Intern: ekmPowershop
June 15 – August 15
- Converted web application pages from classic ASP to **C# / JavaScript**.
- Used **ASP.NET MVC** and **React.js** when modernising existing areas of the web application.
- Followed Facebook's **Flux** architecture for one-way data flow.