

The Study of Deep learning Applications for Autonomous Vehicles, From Unicorns' Perspective.

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摘要

深度學習 (DL) 的應用，使自動駕駛汽車 (AV) 上所需的電腦視覺和傳感器感知得以改進，提昇傳感器融合技術和增強 AI 晶片設計功能，自動駕駛汽車 (AV) 變得可實現。強大的需求和充滿希望的產業發展前景吸引了互聯網巨頭，ICT 領先公司，IC 晶片製造商，汽車企業，人工智慧專業人士和風險投資家紛紛湧入這片充滿希望的領域。本研究的目的是分析和探索深度學習 (DL) 和自動駕駛汽車 (AV) 獨角獸公司* 的組成及其成功因素，並以 DL/AV 獨角獸公司為研究樣本，判定可能與其他產業，如互聯網業，不同的關鍵成功因素。該研究發現，DL / AV 獨角獸公司在公司成功的原因上具有統計意義：(a) 具有強大 AI 團隊的卓越技術；(b) 與 DL / AV 生態系統合作或加入，並擁有強大的財務和技術支持；(c) 公司的可持續成功需要健全的商業模式和敏捷執行。

註：獨角獸公司系指公司估值達美金 10 億元以上，且成立未滿 10 年的新創公司

關鍵詞：自主車輛，深度學習，感知，獨角獸，成功因素

Abstract

Deep Learning (DL) applications have made autonomous vehicles (AV) become achievable through the computer vision and sensor perception improvements, sensor fusion technologies and AI chip designs. The strong demands and promising developments have allured internet giants, ICT leading companies, IC chip makers, auto incumbents, AI professionals and venture capitalists jump into this promising land. The purpose of this study is to analyze and explore the composition of DL/AV unicorn companies* and its successful factors, and take the unicorn companies as the research sample to identify those key success factors which may differ with other sector, such as internet unicorns and etc. The study found that the DL/AV unicorn companies is statistically significant on the reason of companies success: (a) superior technology with a strong AI team; (b) partner with or join in an DL/AV ecosystem with strong financial and technical supports; (c) the sound business model and agile execution is required for the sustainable success of companies.

*A **unicorn** refers to any tech startup company that is established less than 10 years and reaches a \$1 billion dollar market value as determined by private or public investment.

Keywords: Autonomous Vehicle, Deep learning, Perception, Unicorn, success factors