

AI in Building, Construction and Management

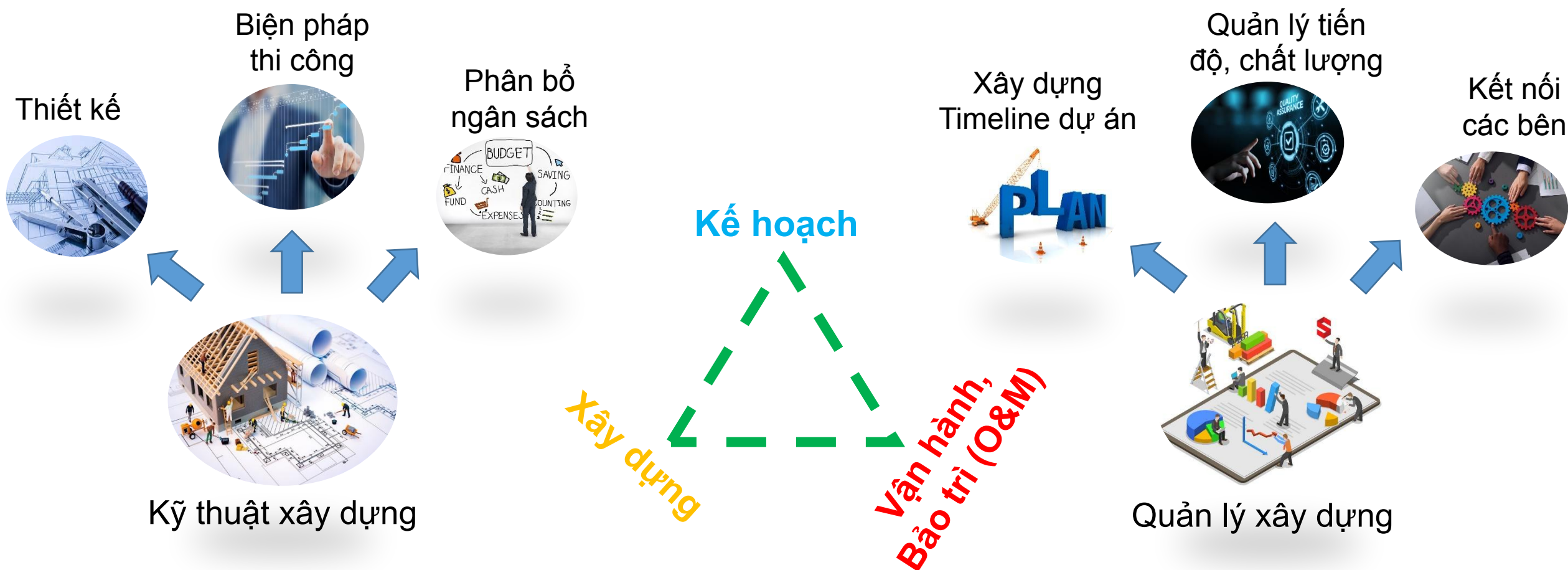


Outline

- **Tổng quan về ứng dụng AI trong xây dựng**
- **Du học và học bổng PhD**
- **Một số lưu ý khi du học ở Úc**

TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

❖ Kỹ thuật xây dựng và quản lý dự án



TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

❖ Xây dựng trong nền công nghiệp 4.0



Source:

<https://www.weforum.org/agenda/2018/06/construction-industry-future-scenarios-labor-technology/>

Data sources:

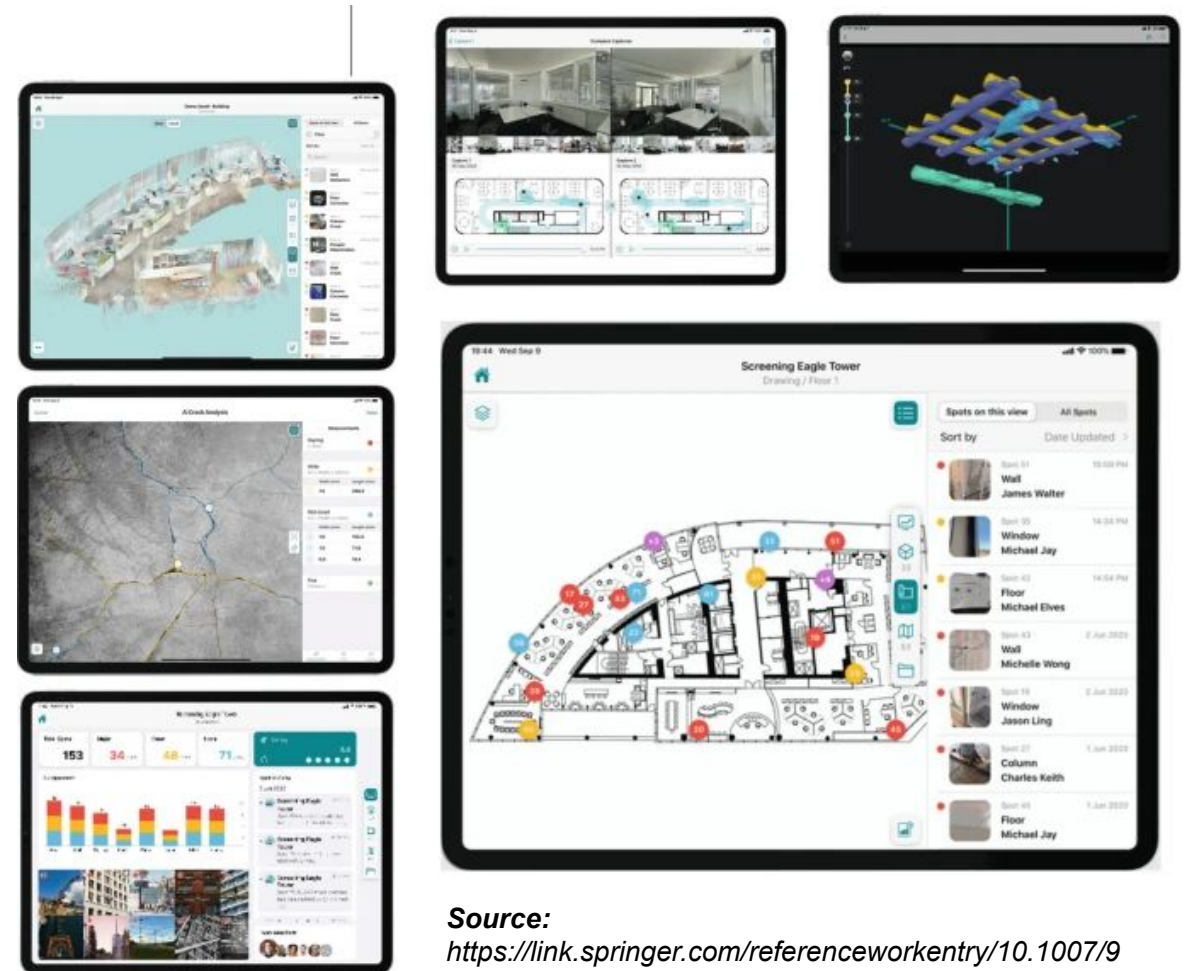
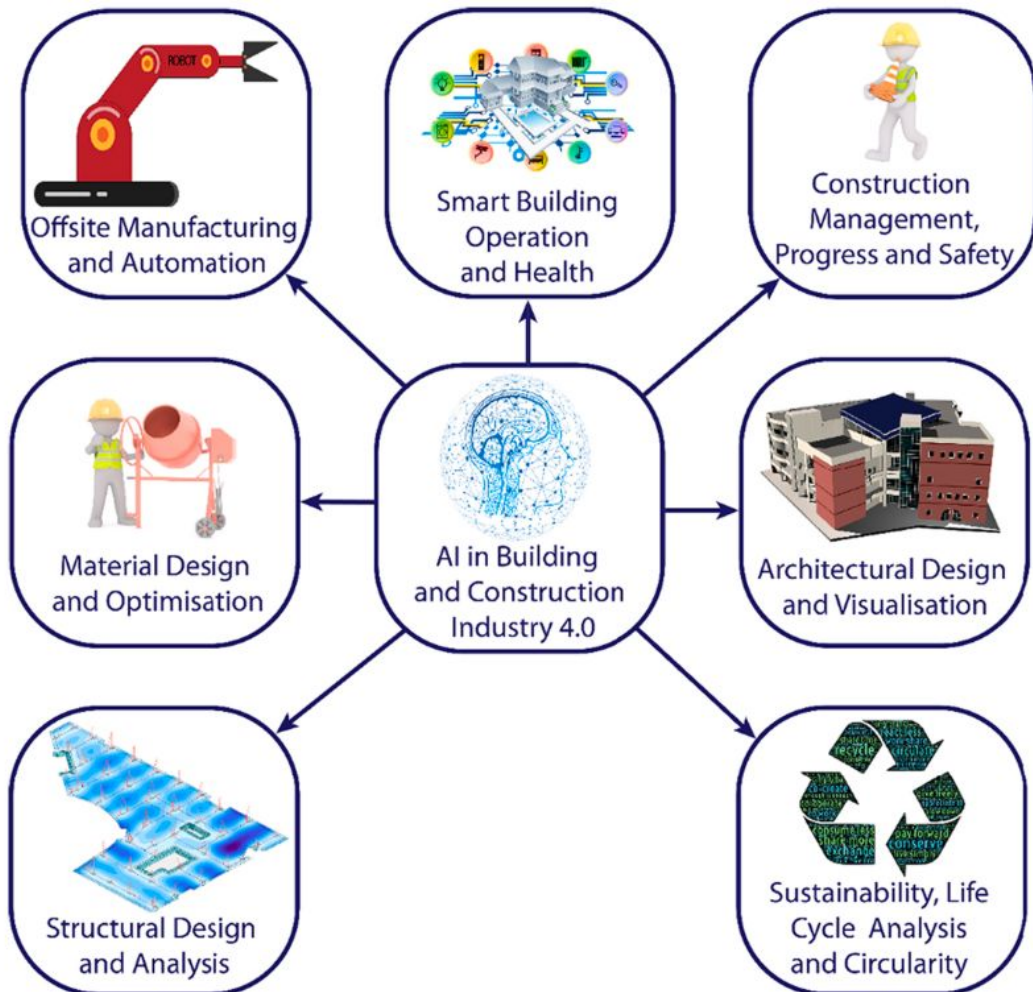
- Sensors
- Cameras
- UAV
- LiDAR
- GPR

Thách thức:

- Dữ liệu lớn, đa phần là không có cấu trúc
- Khối lượng tính toán nhiều
- Tối ưu hóa nguồn lực (con người, thời gian, vật liệu, chi phí)

TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

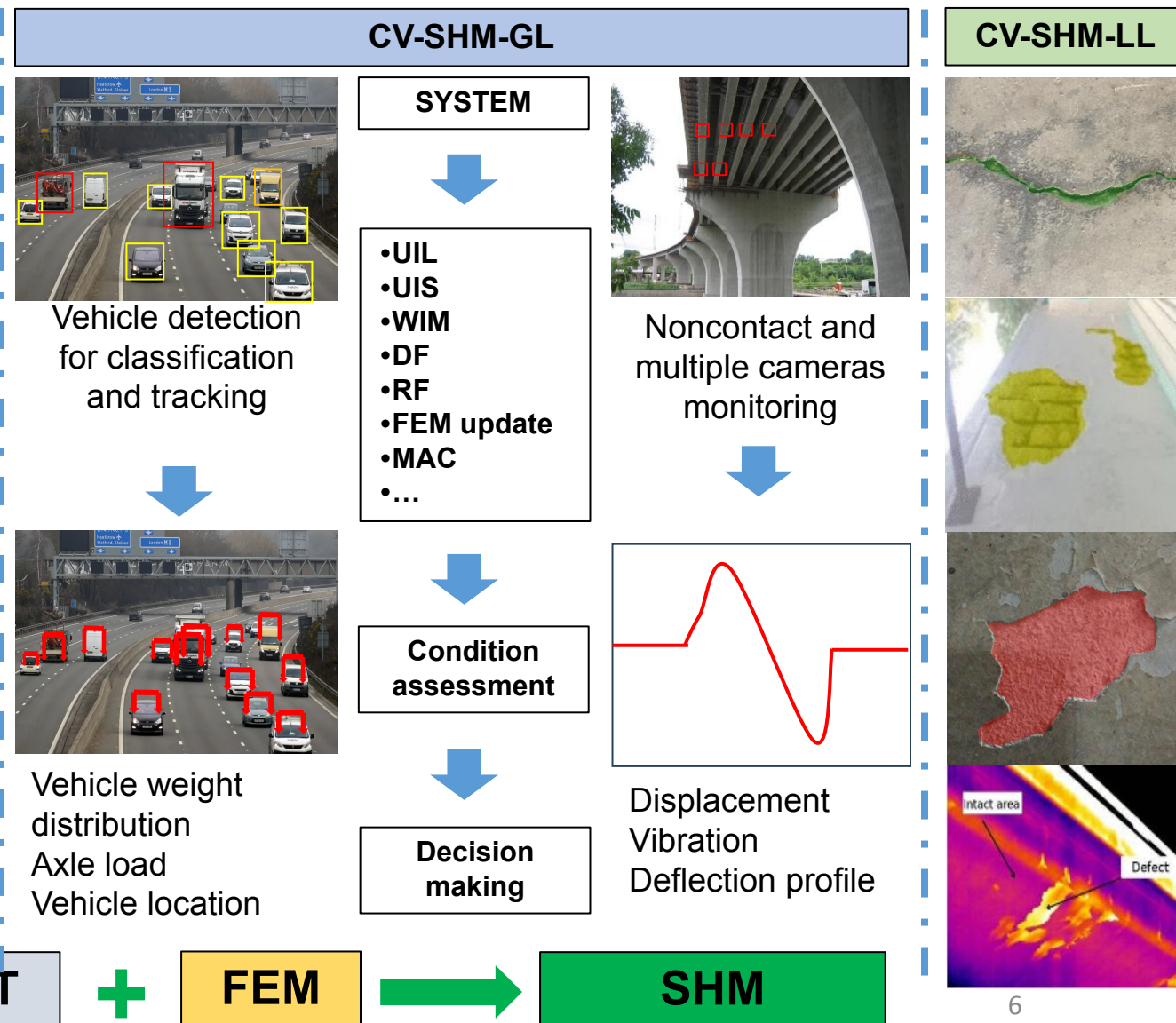
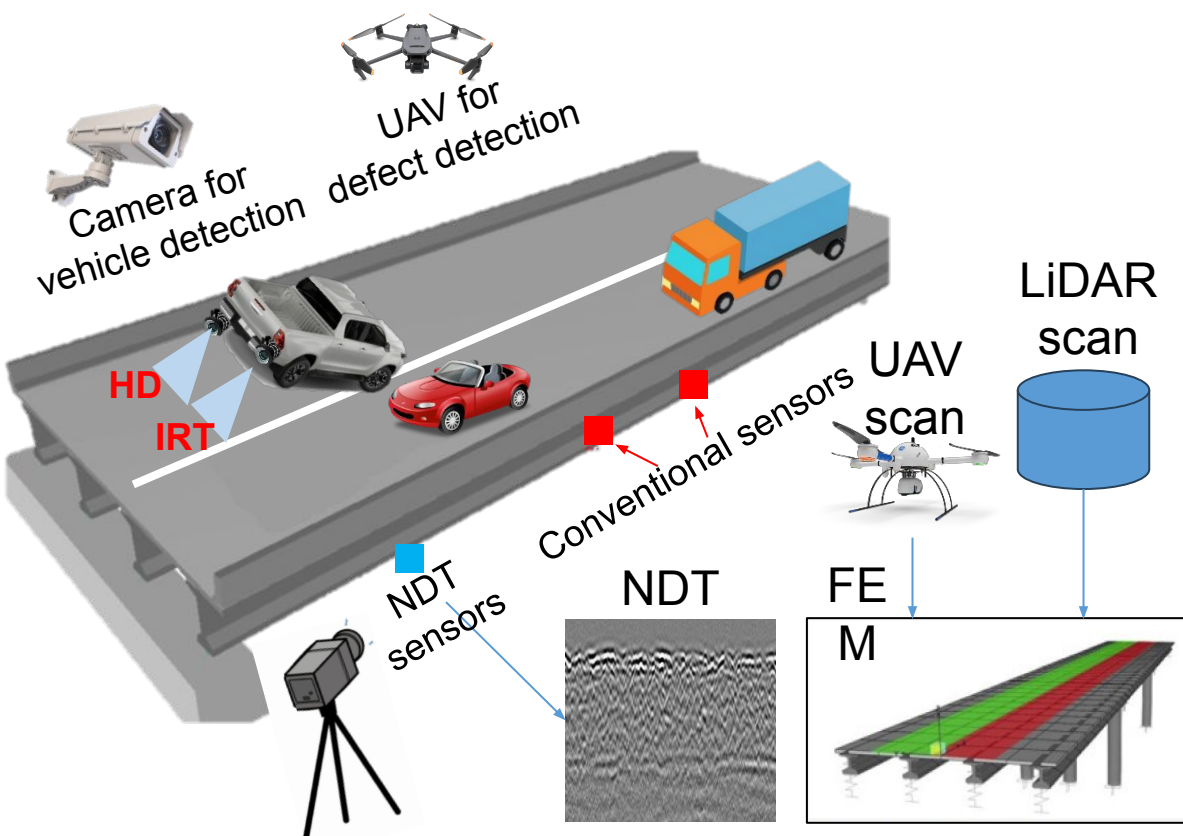
❖ Một số ứng dụng của AI trong xây dựng



Source:
https://link.springer.com/referenceworkentry/10.1007/978-3-030-73206-6_1

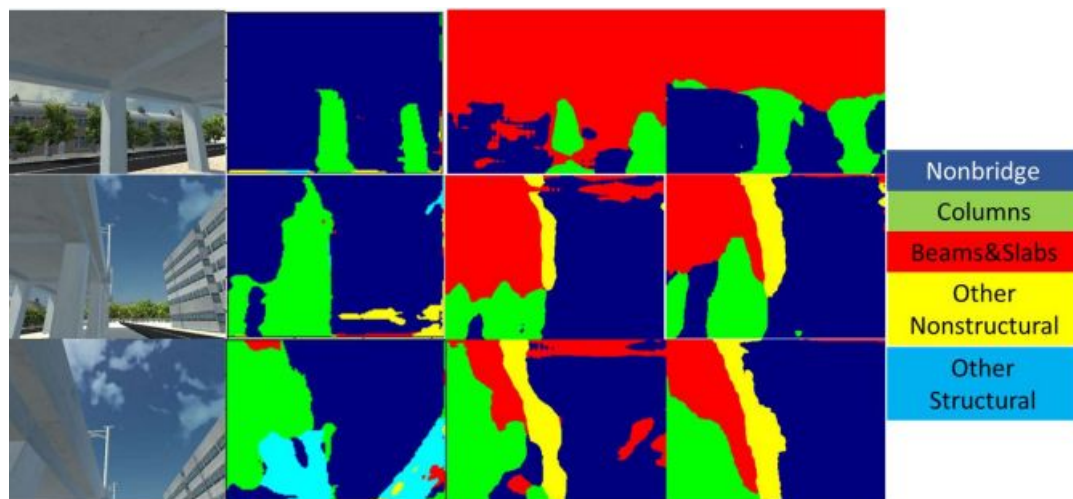
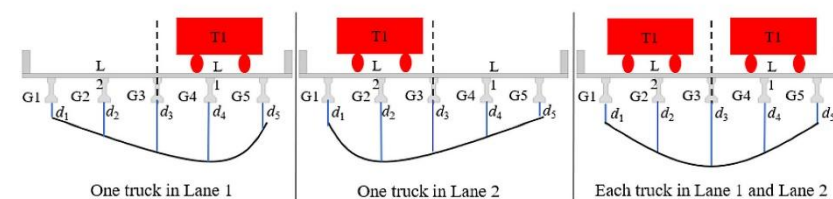
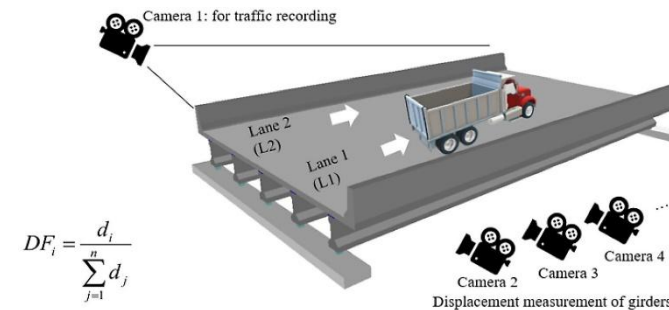
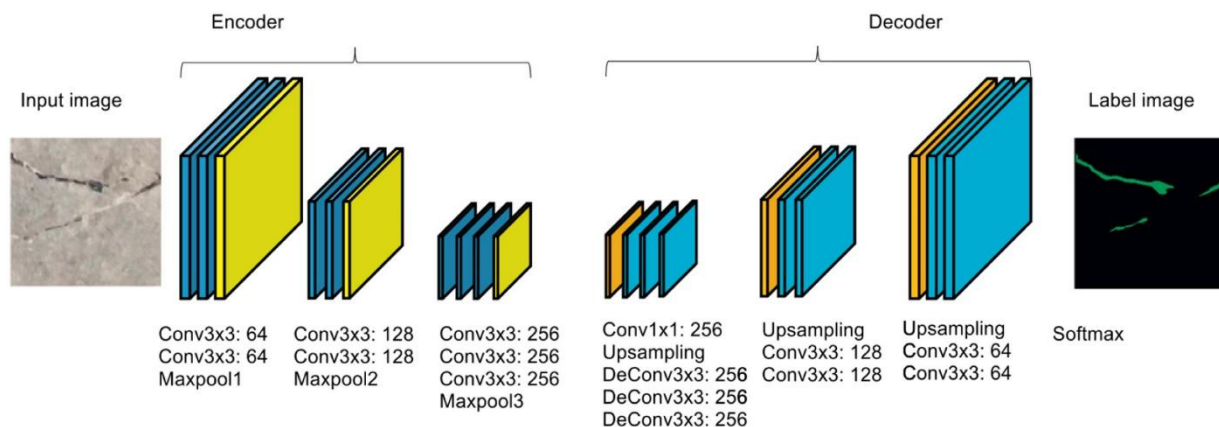
TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

Source: <https://doi.org/10.1177/1475921720935585>

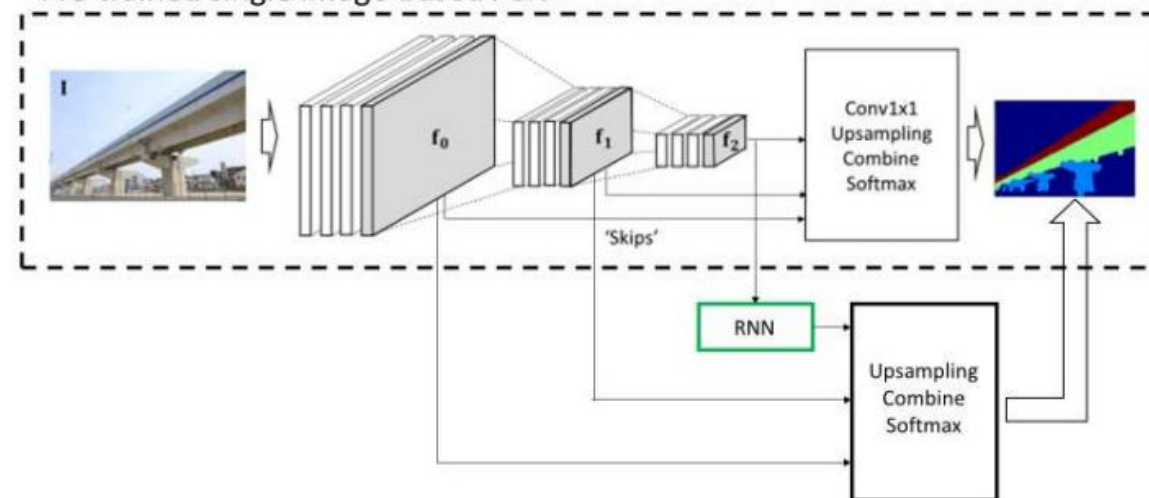


TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

Source: <https://doi.org/10.1177/1475921720935585>

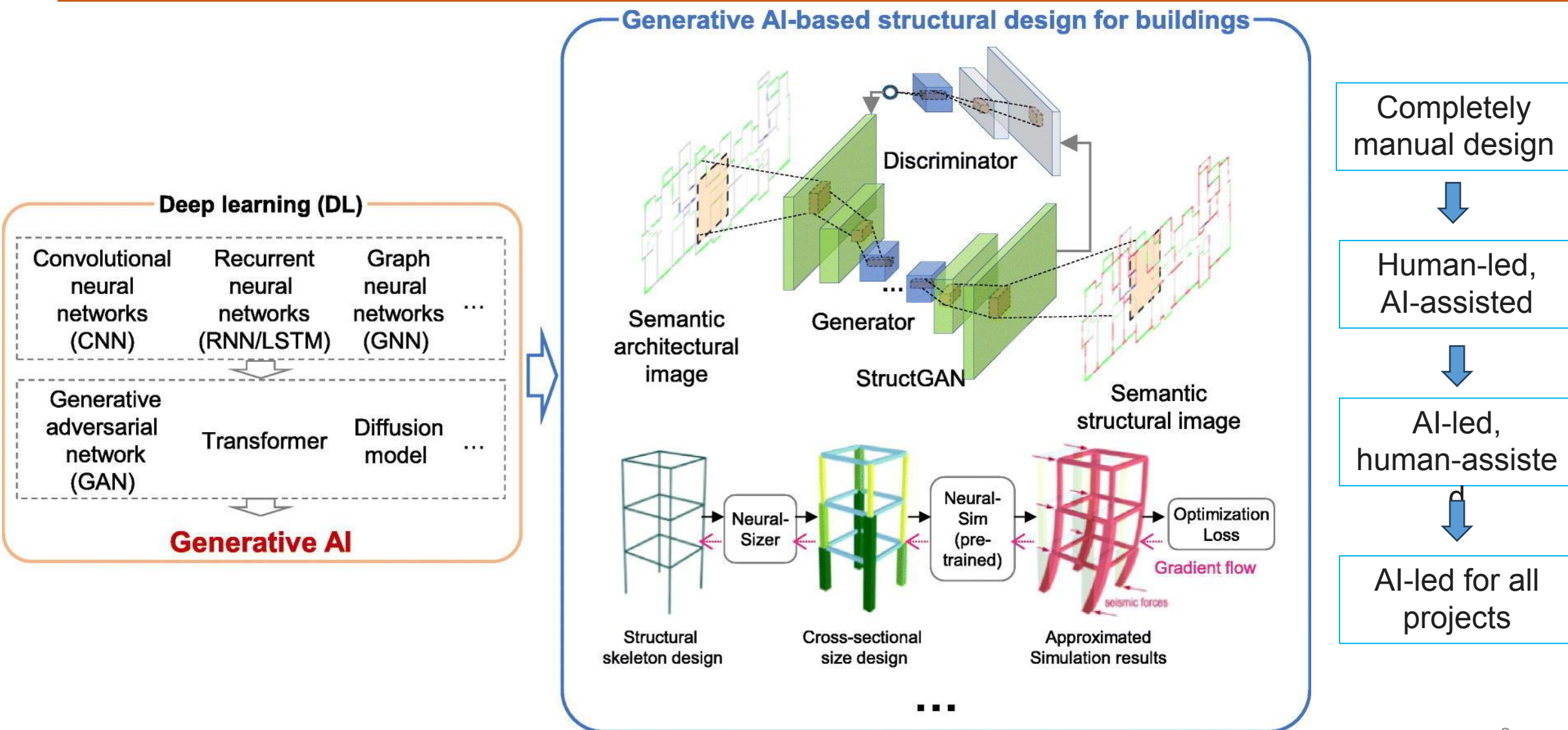


Pre-trained single image-based FCN



Source: <https://doi.org/10.1111/mice.12505>

TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG



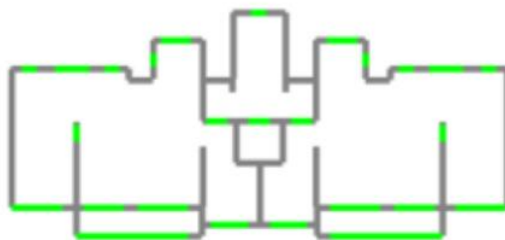
Architectural design drawing



Pre-
process

Step 1
5 min

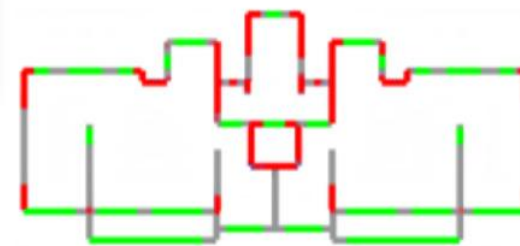
AI-adopted
architectural image



AI design

Step 2
2 min

AI-generated
structural image



Step 3
3 min

Post-process

[illegible]

国名	主要城市	主要语言
安哥拉	利昂多	葡萄牙语
阿根廷	布宜诺斯艾利斯	西班牙语
澳大利亚	悉尼	英语
奥地利	维也纳	德语
孟加拉国	达卡	孟加拉语
比利时	布鲁塞尔	法语、荷兰语、德语
巴西	圣保罗	葡萄牙语
保加利亚	索非亚	保加利亚语
加拿大	渥太华	英语、法语
智利	圣地亚哥	西班牙语
中国	北京	汉语
哥伦比亚	波哥大	西班牙语
哥斯达黎加	圣何塞	西班牙语
古巴	哈瓦那	西班牙语
多米尼加	圣多明各	西班牙语
厄瓜多尔	基多	西班牙语
萨尔瓦多	圣萨尔瓦多	西班牙语
危地马拉	危地马拉城	西班牙语
海地	太子港	法语、克里奥尔语
洪都拉斯	特古西加加尔帕	西班牙语
印度尼西亚	雅加达	印度尼西亚语
意大利	罗马	意大利语
日本	东京	日语
喀麦隆	雅温得	法语
加拿大	蒙特利尔	法语
肯尼亚	内罗毕	英语、斯瓦希里语
老挝	万象	老挝语
拉脱维亚	里加	拉脱维亚语
立陶宛	维尔纽斯	立陶宛语
卢森堡	卢森堡	法语、德语、荷兰语
马达加斯加	塔那那那利	法语、马达加斯加语
马来西亚	吉隆坡	马来语、英语
墨西哥	墨西哥城	西班牙语
莫桑比克	马普托	葡萄牙语
尼泊尔	加德满都	尼泊尔语
荷兰	阿姆斯特丹	荷兰语
新西兰	惠灵顿	英语
挪威	奥斯陆	挪威语
巴基斯坦	伊斯兰堡	乌尔都语、英语
帕劳	科罗尔	英语
秘鲁	利马	西班牙语
菲律宾	马尼拉	英语、他加禄语
波兰	华沙	波兰语
葡萄牙	里斯本	葡萄牙语
罗马尼亚	布加勒斯特	罗马尼亚语
俄罗斯	莫斯科	俄语
沙特阿拉伯	利雅得	阿拉伯语
塞内加尔	达喀尔	法语
塞尔维亚	贝尔格莱德	塞尔维亚语
塞拉利昂	弗里敦	英语
斯洛伐克	布拉迪斯拉发	斯洛伐克语
斯洛文尼亚	卢布尔雅那	斯洛文尼亚语
南非	约翰内斯堡	英语、南非荷兰语
西班牙	马德里	西班牙语
斯里兰卡	科伦坡	英语、僧伽罗语
苏丹	喀土敏	阿拉伯语
瑞士	伯尔尼	德语
瑞典	斯德哥尔摩	瑞典语
泰国	曼谷	泰语
坦桑尼亚	达累斯萨拉姆	斯瓦希里语、英语
泰国	曼谷	泰语
土耳其	安卡拉	土耳其语
乌干达	坎帕拉	英语
乌克兰	基辅	乌克兰语
美国	华盛顿	英语
乌拉圭	蒙得维的亚	西班牙语
越南	河内	越南语
赞比亚	卢萨卡	英语
津巴布韦	哈拉雷	英语



YJK
Software

Step 5
10 min

- Shear wall
x1, y1, x2, y2,
thickness
- beam
x1, y1, x2, y2,
width, height

Parameters for modeling

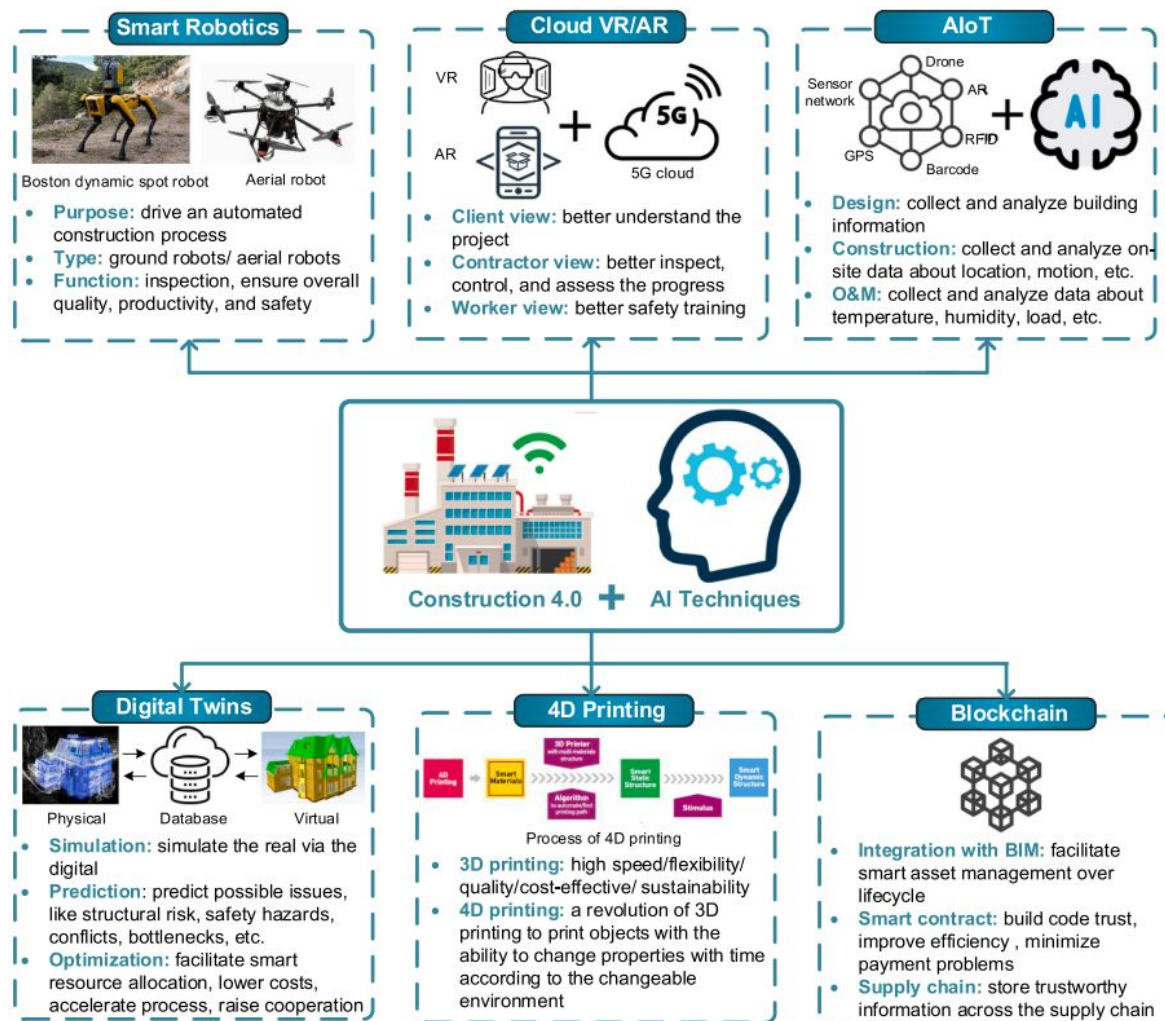
AI design

Step 4
1 min

Shear wall and beam layout design drawing

TỔNG QUAN VỀ ỨNG DỤNG AI TRONG XÂY DỰNG

❖ Các hướng nghiên cứu trong tương lai



DU HỌC VÀ HỌC BỔNG TIẾN SĨ

Why do a PhD?

The thirst for knowledge

Make contribution to the subject

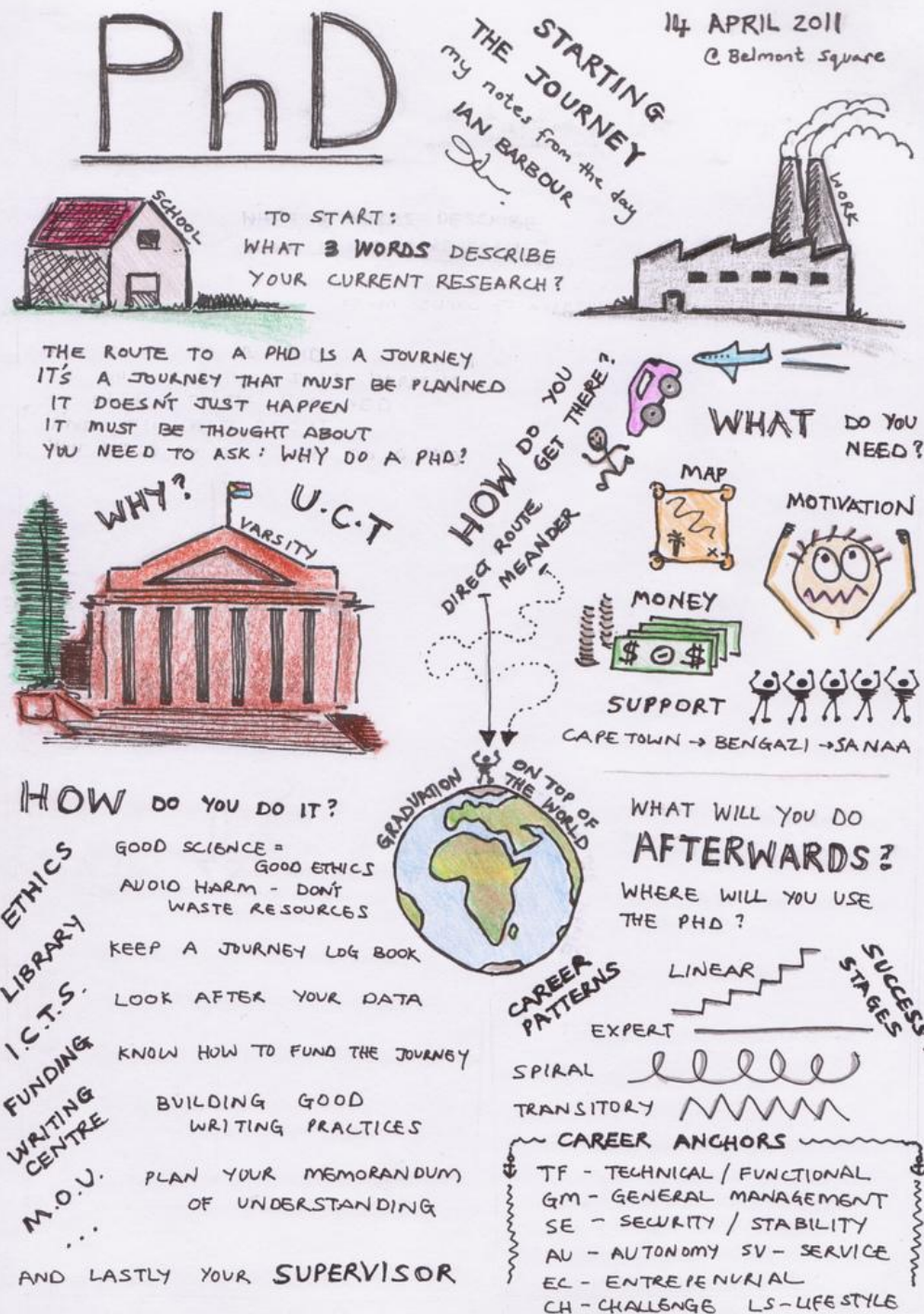
MOTIVATION

Career goals

Gain transferrable skills

There will be moments when you'll ask yourself "Why did I do this?"

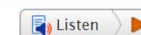
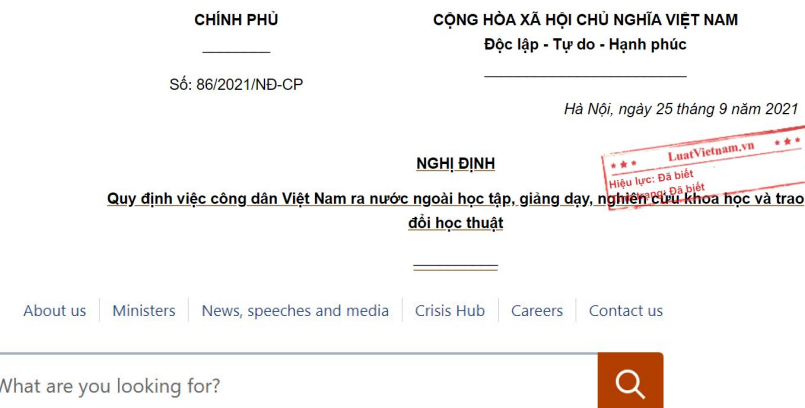
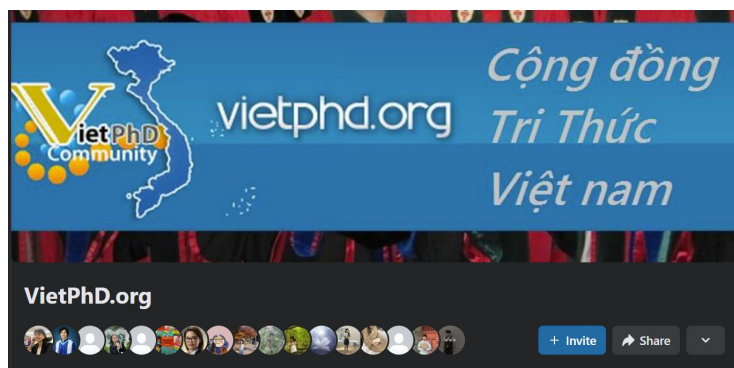
Photo Credit: [Ian](#)



DU HỌC VÀ HỌC BỔNG TIẾN SĨ

◆ Where can I find funding sources?

- Government funds (e.g., Nghị Định 86, AAS, MEXT)
- Scholarships from industry
- **Scholarships from Professors.**



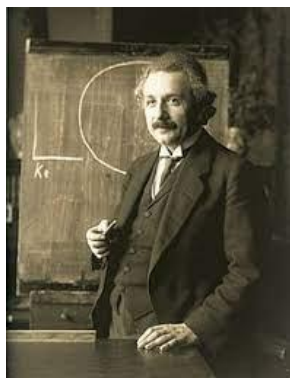
[Home](#) > [People-to-people](#) > [Australia Awards](#) > Australia Awards Scholarships



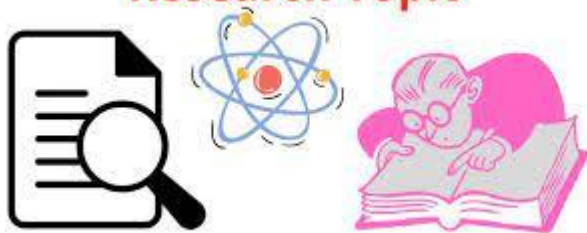
Australia Awards Scholarships

DU HỌC VÀ HỌC BỔNG TIẾN SĨ

◆ Which PhD program should I choose?

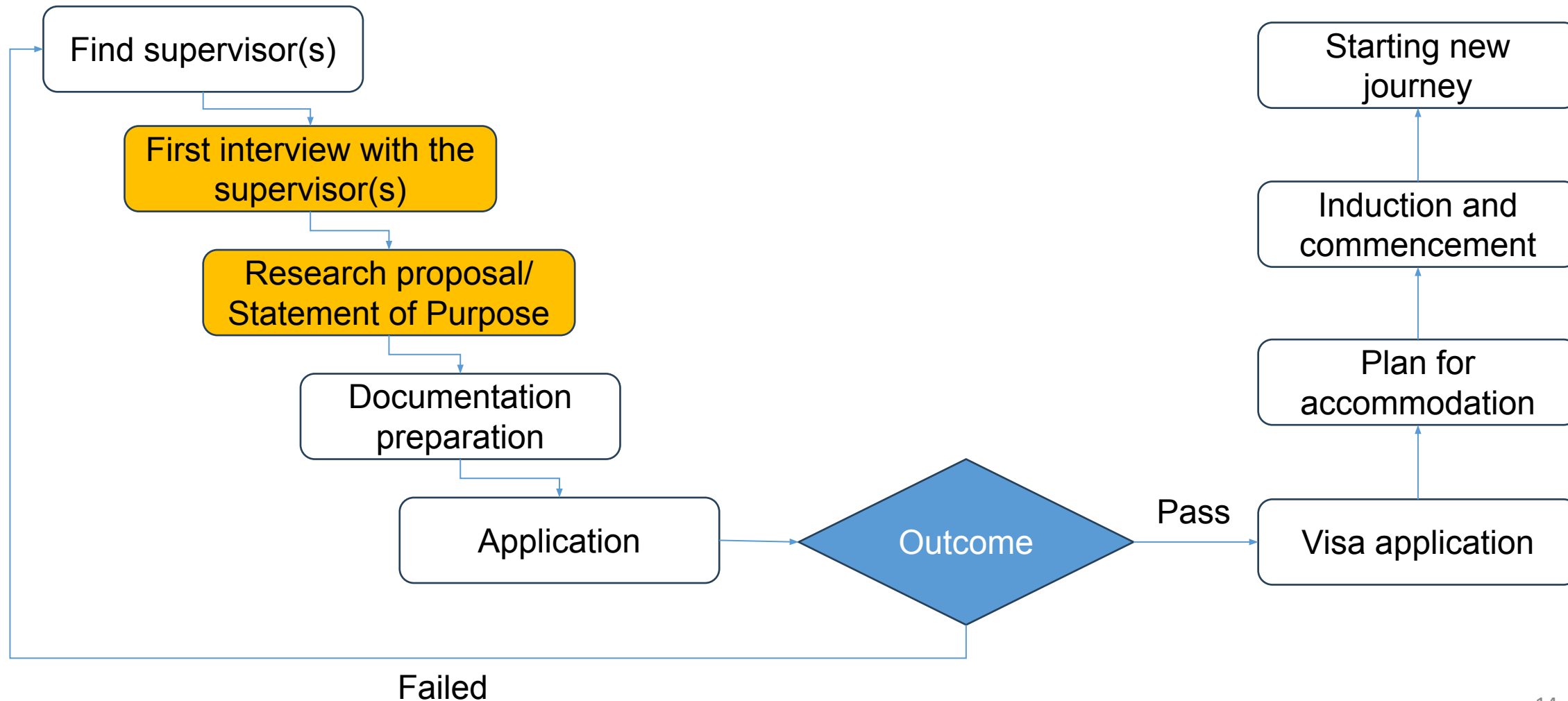


Research Topic



DU HỌC VÀ HỌC BỔNG TIẾN SĨ

❖ General PhD application process

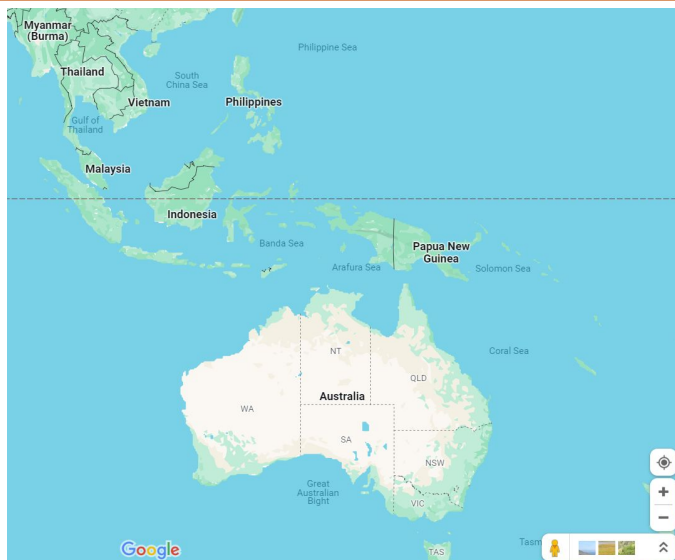


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◆ Which skills should I prepare for a PhD life?



DU HỌC ÚC



**Australian
National
University**



THE UNIVERSITY OF
MELBOURNE



THE UNIVERSITY OF
SYDNEY



Curtin University



THE UNIVERSITY OF
WESTERN
AUSTRALIA

Why study in Australia



Globally
recognised
courses and
institutions



Good ratings for:
• teaching quality
• research
• graduate employment



Ability to work part time
while completing your
studies



studies in australia

The International Students' Guide



Reasonable
study costs

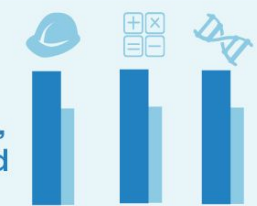
Considerably lower
than other destinations
such as the US and UK



Courses are often
shorter than those
in other countries



Ranked highly
in areas such
as engineering,
accounting and
health science



Australia
Other countries

❖ The University of Melbourne - Graduate Research Scholarships

Stipend and fee offset scholarships

- Full fee offset for up to two years for students undertaking a Masters by Research degree or up to four years for students undertaking a doctoral degree.
- Living allowance of \$37,000 per year pro rata (2024 full-time study rate) for up to two years for students undertaking a Masters by Research degree or up to 3.5 years for students undertaking a doctoral degree. The living allowance may be indexed annually and includes limited paid sick, maternity and parenting leave.
- Relocation grant of \$2000 for students moving from States or Territories other than Victoria or \$3000 for students moving from outside Australia.
- Overseas Student Health Cover (OSHC) Single Membership for international students who require a student visa to study in Australia

❖ PhD life in Australia – a case in the University of Melbourne

- Working hours: 9 to 5 on weekdays.
- Multicultural working environment with high quality facilities.
- Flexible working spaces.
- Questioning and discussion are encouraged.

❖ Career path in Australia after completing PhD

- Promising salary for PhD but highly competitive (\$95,000 to \$115,000 pa)
- Opportunities to work on either industry or R&D sectors
- Permanent resident and citizenship (quota is subjected to change according to years, visa types and majors)

