



Sunlight Forest Village

木漏れ日の里

Hao Huang

2018

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# Sunlight Forest Village

An Intergenerational Retirement Community

**Komorebi no sato**





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**Sunlight Forest**  
**木漏れ日の里**

**An Intergenerational Retirement Community**

**HAO HUANG**

Texas A&M University  
Spring 2018





## Sunlight and shadow brings a peaceful feeling to life

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First Edition

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Studio Professor: Ray Pentecost

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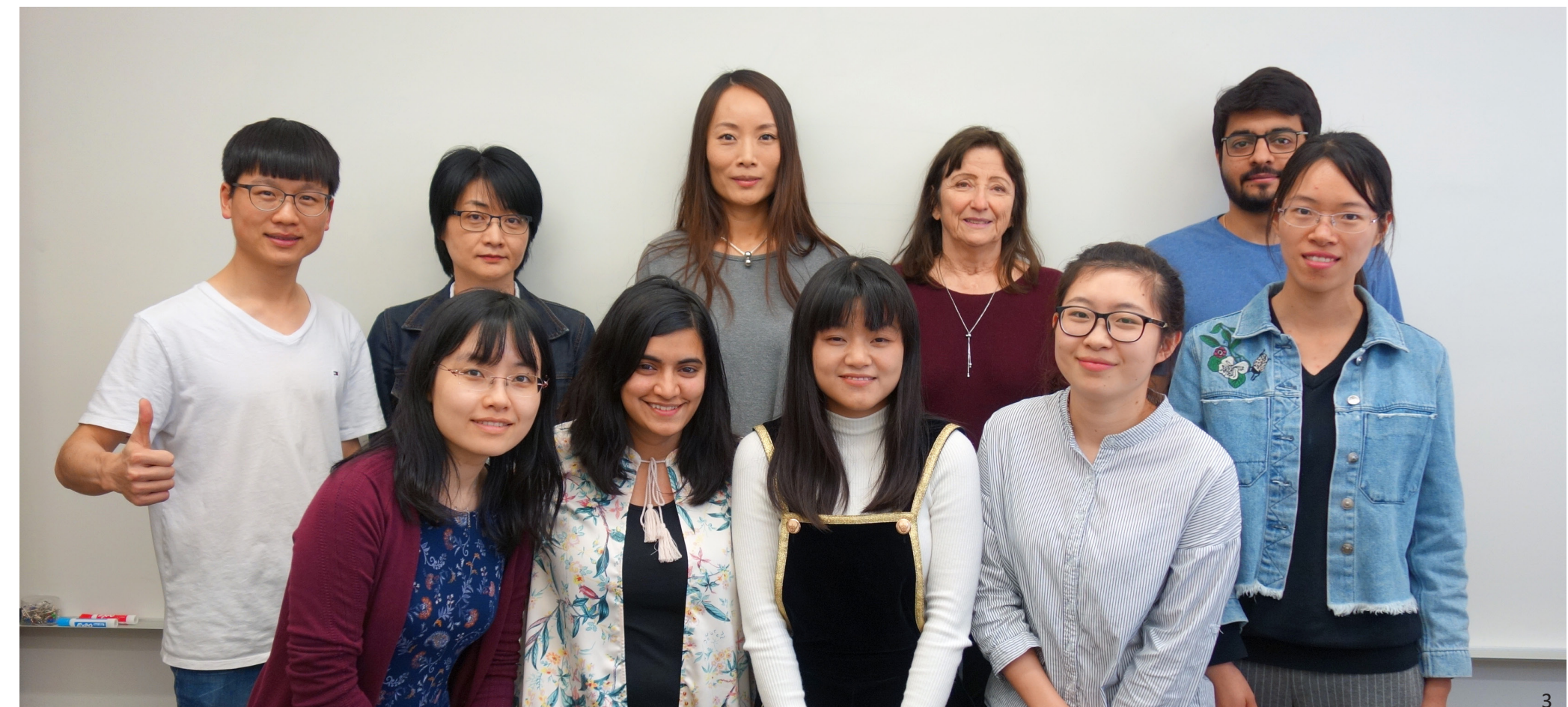
Committee Chair: Susan Rodiek

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Co-chair: Zhipeng Lu

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Member: Chanam Lee





## Dedication

### To my family

Without your love, constant support and encouragements, I couldn't accomplish this work. Thank you for your infinite love and dedication. I love you.

## 感谢

### 致家人

谢谢你们一把屎一把尿把我拉扯大，谢谢你们... (此处省去一万字)... 我爱你们。如果非要在这份爱上加上一个期限，我希望是……一万年！



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# Programming

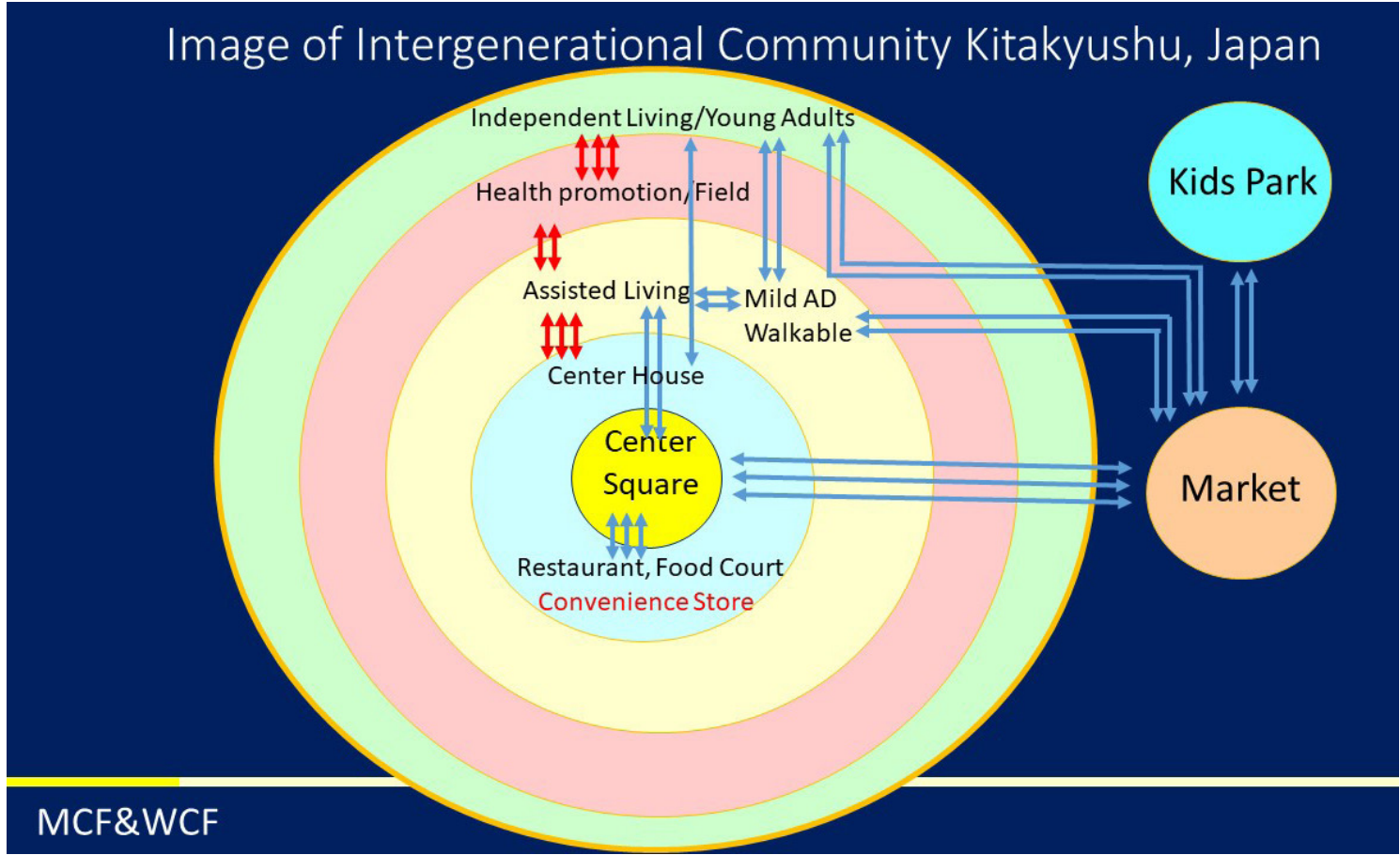




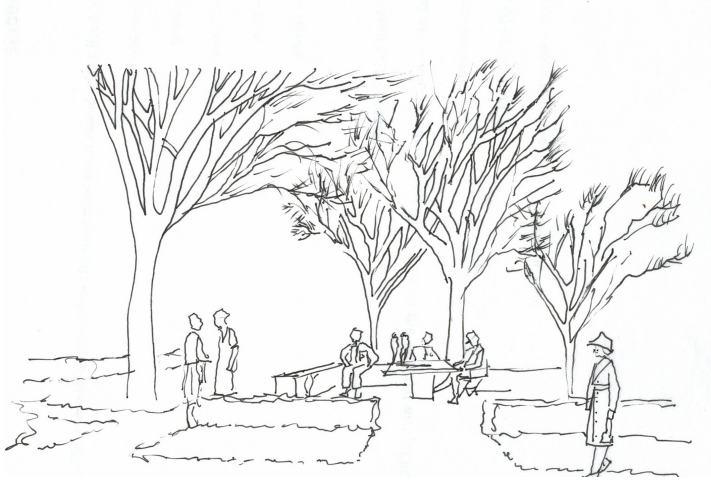
# Establish Goals

**Client Dr. Kenshi Nishino**

Dr. Kenshi Nishino is Director of Nishino Hospital, which provides housing and care for older adults, as well as outpatient and day services. They are pioneering ways to prevent and treat dementia using environmental therapies such as nature art, gardening, and preparing food.



**Get access to nature**



**Encourage interaction**



**Support healthy lifestyles**

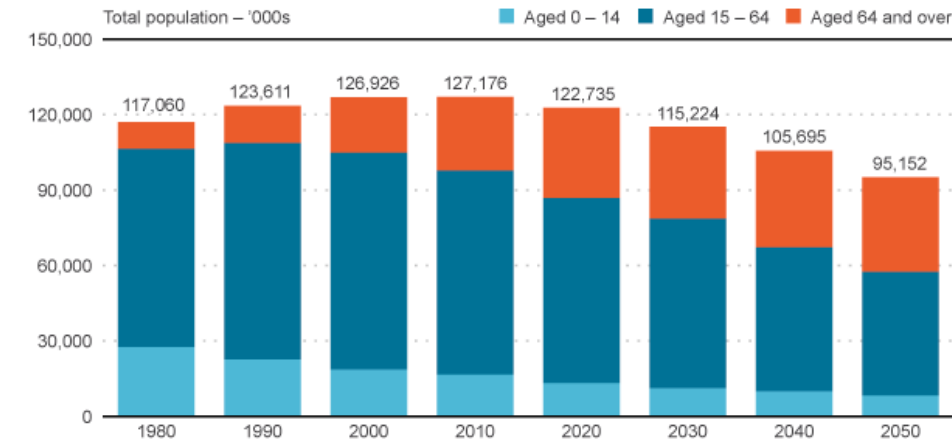




## Aging of Japan

Japan is becoming a “super-aging” society. People aged 65 or above make up a quarter of Japan's population. The low birthrate and high life expectancy change the population pyramid so the young people have to care for more older people (Traphagan & Knight, 2003). According to the Alzheimer's Association, “In Japan more 4.6 million people are living with dementia.” Dementia is an overall term that describes a wide range of symptoms associated with a decline in memory. The number of people with dementia increase rapidly (Alzheimer's Association, 2017).

## Japan's ageing population



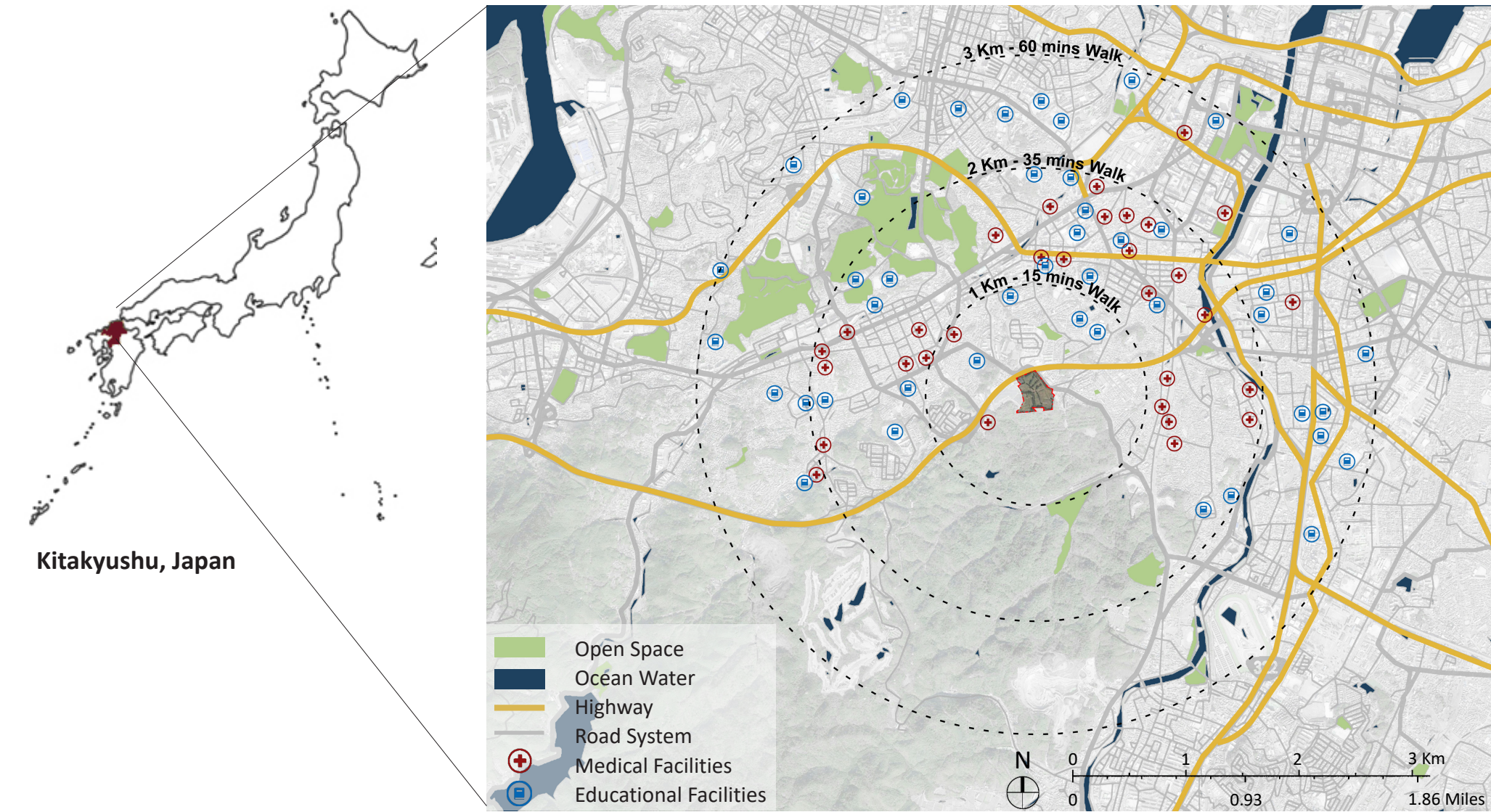
## Dolls take place of dwindling population

The total population in Japan reached its peak at 128.1 million in 2010 (General Government Statics Administration, GGSA, 2017). Since then, population in Japan continued to decline during the next 7 years. In Nagoro, dolls outnumber living residents as demographic shift threatens many communities with extinction. It's estimate that the declining birthrate and rapid ageing have left thousands of villages across Japan battling depopulation.

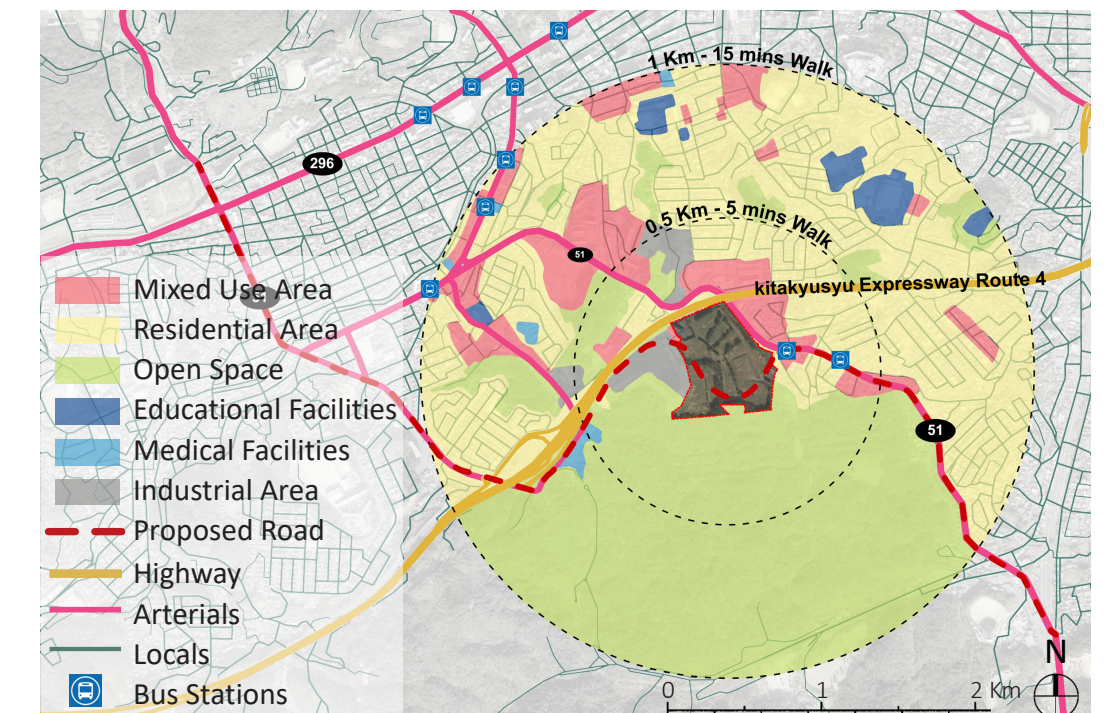


## Japan government's thoughts

The government envisions CCRC (Continuing Care Retirement Community) located outside of Tokyo as a solution. The older people can have easy access to medical and social welfare services. Further, they can join a lot of activities in the community.



The 23-acre site is in the southern part of Kitakyushu city, Japan. The city had an estimated population of 1 million people, the country's 15th most populated city. The climate is characterized by relatively high temperatures and evenly distributed precipitation throughout the year. The average temperature in August is 82.0°F (27.8°C). The average temperature in January is 43.0°F (6.1°C). The site was formerly a golf course. There is mature vegetation nearby.

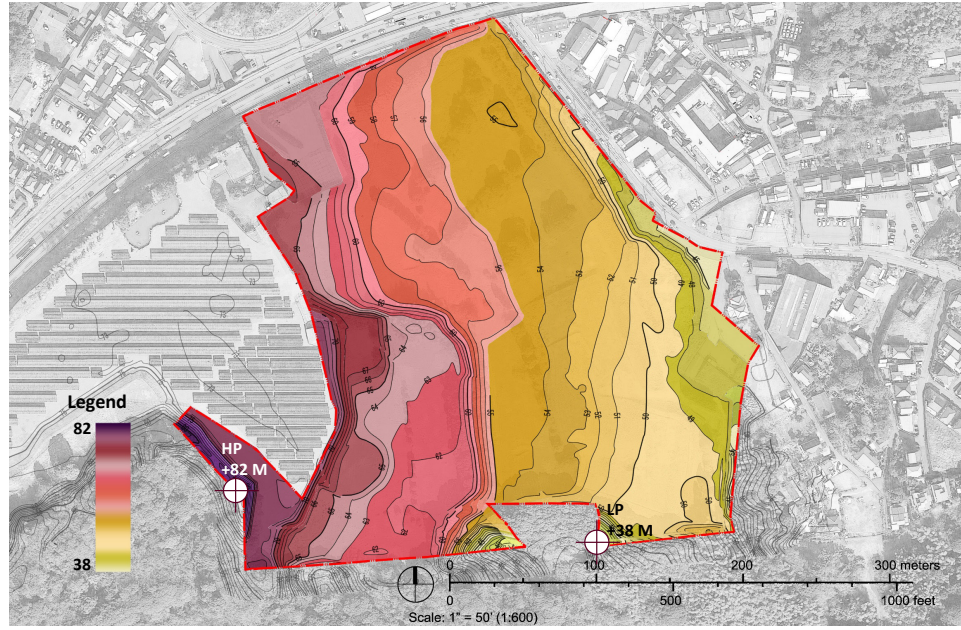


Drawn by MLA students



# Site Analysis

# Site Photos



Topography



Slope



Drainage

Drawn by MLA students



Existing Vegetation





# Nishino Hospital

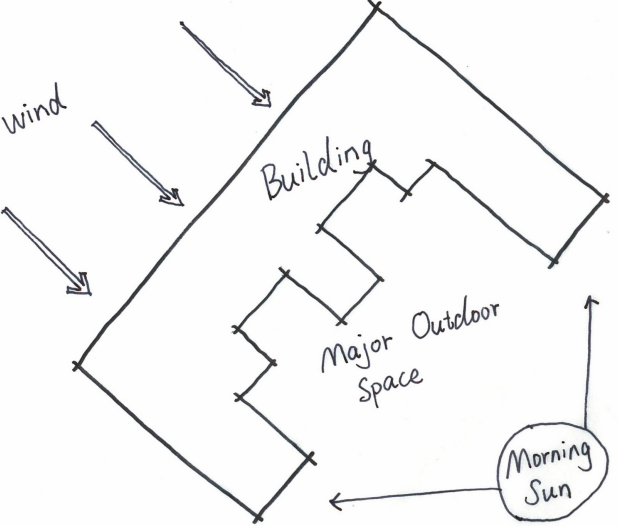
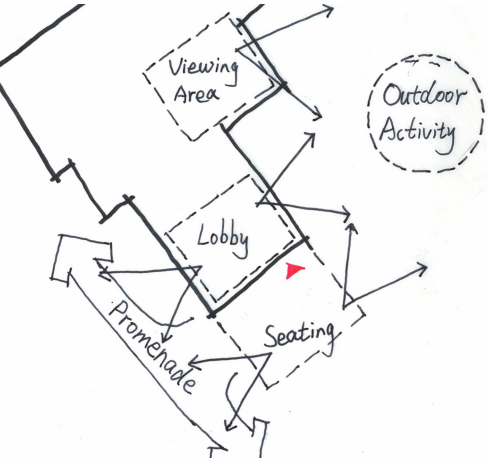


# Uncover Concepts

Home-like care environments



Inter-generational communication



Winter sunlight



# Determine Needs



## RESIDENTIAL BUILDINGS 住宅施設

Resident type 住宅タイプ	Number of Units 住戸数	Size of Unit 施設面積	Size of Household 世帯規模	Total area (sq.m) 総面積	Users description and Usage 詳細と用途
Memory Care - MC 認知症ケア施設	100	15	9 max.	3500	Older people with cognitive impairment (Mild-moderate only) 認知機能障害を持つ高齢者向け（軽度、中等度のみ）
Assisted Living - AL 支援型施設	100	30	12	4,500	Older people needing assistance with activities of daily living 日常生活動作に支援を必要とする高齢者向け
Independent Living - IL 自立型施設	100	35	15	4,500	Older people who can function well with only minimal assistance 健康で最小限の支援が必要な高齢者向け
Shared Housing - SH シェアハウス	100	30	30	5,000	Students / single parents / young families 学生/ひとり親家庭/若い家族向け
Detached Housing - DH 離れの住宅	10	90	1 or 2	900	Older people who live in independent cottages 高齢者向け独立した離れのコテージ
Condominiums - CO コンドミニアム	50	50	80	3,250	People of any age live here; also short-term guests, family visitors あらゆる世代向けの住宅施設；短期訪問や家族の面会など
<b>TOTAL - Residential 総住宅施設数</b>	<b>460 units</b>			<b>21,650 sq.m</b>	

Drawn by Hardik Jariwala

## OUTDOOR AMENITIES 屋外施設

Functional Area 機能エリア	Description and Usage 詳細と用途
Zocalo - ZO 広場	Market square surrounded by shops, restaurants and cafes ショッピング、レストラン、カフェが立ち並ぶマーケット広場
Promenade 遊歩道	Main pedestrian circulation, connects Zocalo to housing 広場と住宅施設を接続し歩行者を誘導
Small gardens / Parks 小さな庭/公園	Variety of gardens connect housing clusters, buildings and amenities 集合住宅群、建物、施設をつなげる様々な庭
Kids Park - KP キッズパーク	Special destination for kids outside community (100 kids capacity) 子供向けの屋外特別施設（子供収容人数100名）
Tennis Courts - TC テニスコート	Two courts, near shaded seating where people can watch players テニスコート2面、屋根付きベンチでテニス観戦
Golf Green - GG ゴルフ場緑地	Multipurpose undulating green (locate near housing cluster) 多目的に利用できる起伏のある緑地（就業住宅群付近に立地）
Orchard - OR 果実園	Residents can watch and enjoy taking care of fruit trees 果樹栽培などが楽しめる
Water features 水盤	Water can enhance outdoor spaces; low-maintenance design 屋外スペースを引き立てる水盤；維持にあまり手間のかからない設計
Bus Stop バス停	Provide seating and shelter (locate near supermarket, kidspark) 屋根及びベンチの設置（スーパーマーケットとキッズパーク付近）

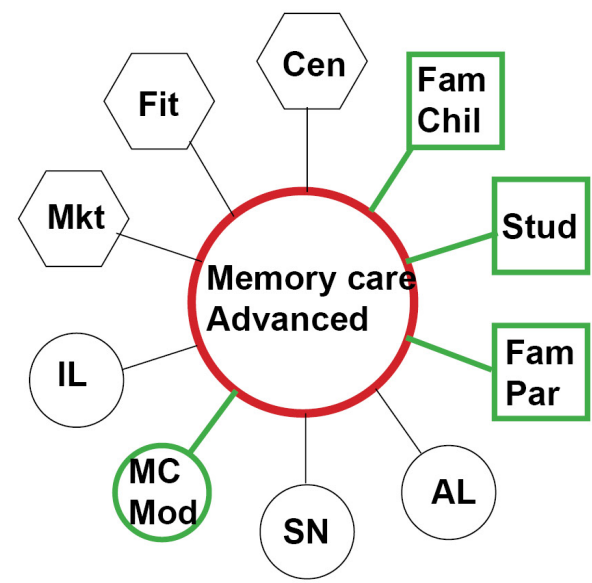
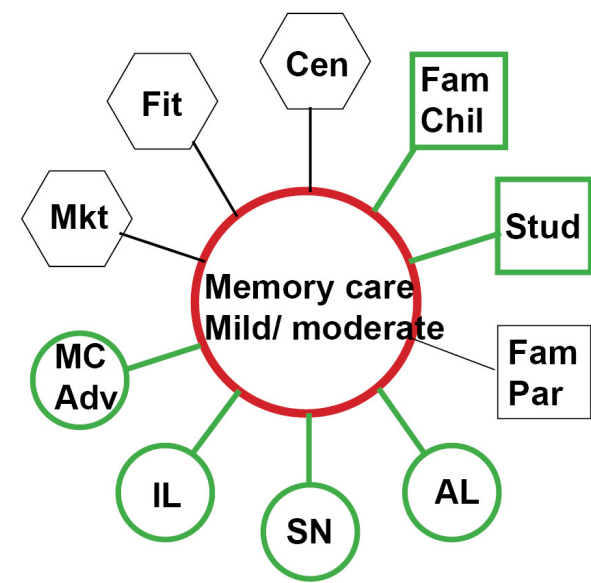
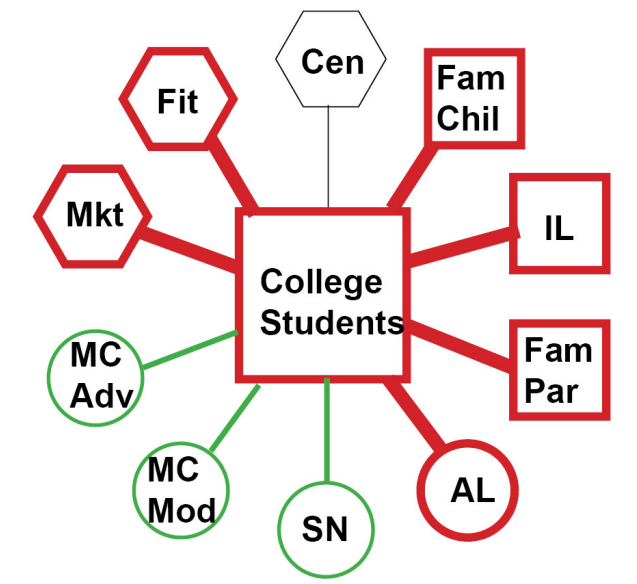
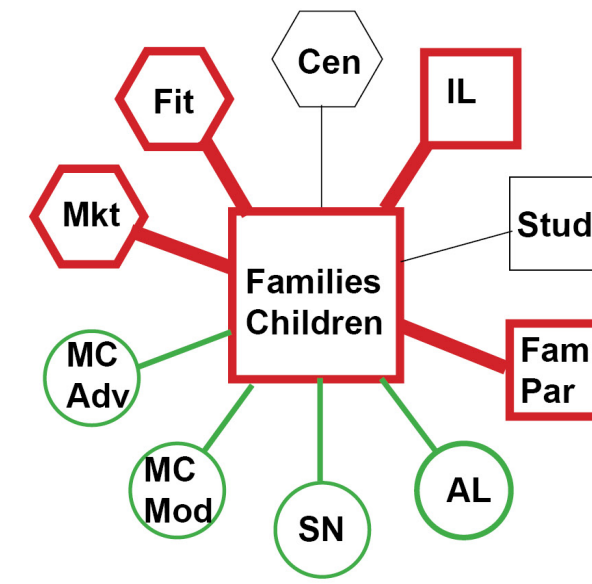
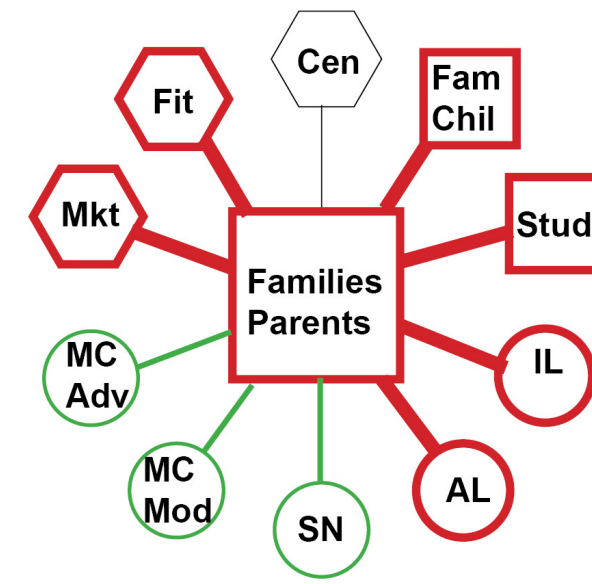
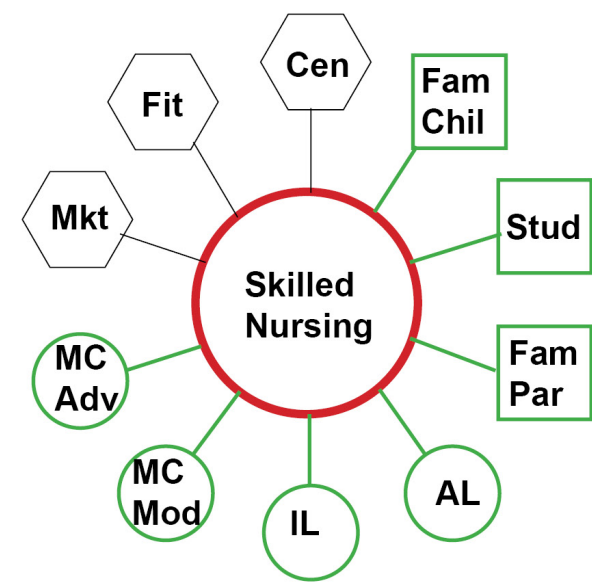
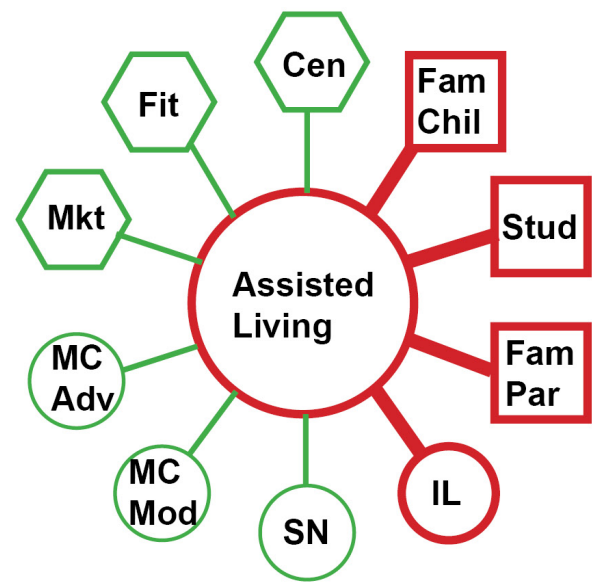
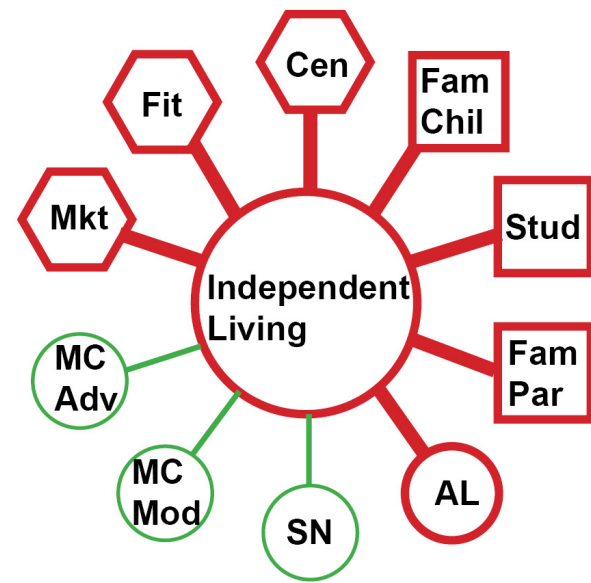
## SERVICE BUILDINGS サービス施設

Functional Area 機能エリア	Number 施設数	Total area (sq.m) 総面積	Description and Usage 詳細と用途	
Day Service Center - DS デイサービスセンター	1	550	Weekday activities for older adults dropped off by family member or shuttle; capacity 100 家族やシャトルバスによる送迎、毎週高齢者向けイベントの開催；収容人数 100人	
Fitness Center - FC フィットネスセンター	1	250	Health center office, studio room 健康センターオフィス、スタジオルーム	
Center House - CH センターハウス	1	500	Information head quarters, Internet of Things, Administrative work. 情報総合センター、モノのインターネット、管理業務本部	
Convenience Store - CS コンビニエンス・ストア	1	450	Residents can get convenient products closer to home. 住宅施設近くにコンビニエンス・ストアが立地	
Zocalo 広場	Music House with Bar - MH カウンター付き音楽堂	2	200	Place to relax, enjoy music, bar, light food, outdoor space カウンターでの軽食や野外スペースなど、リラックスして音楽が楽しめる場所
	Food Court Stalls フードコート	6	180	Separate stalls with different kinds of food; additional mobile food kiosks might also set up nearby 屋台毎に様々な種類の料理を提供、移動式屋台・売店も設置可能
	Restaurants - RS レストラン	5	1,000	Different types of restaurants 様々な種類のレストラン
	Supermarket - SM スーパーマーケット	1	2,500	Residents from different households can purchase food and supplies 各住宅施設から買い物が可能
<b>TOTAL - Service Buildings 総イベント施設数</b>	<b>18</b>	<b>5,630</b>		

Drawn by Hardik Jariwala



# Potential Interaction and Compatibility



**Legend**

Fam-Par: Young Families Parents  
 Fam-Chil: Young Families Children  
 Stud: College Students

IL: Independent Living  
 AL: Assisted Living  
 SN: Skilled Nursing  
 MC-Mod: Memory Care Mild/ moderate  
 MC-Adv: Memory Care Advanced

Mkt: Market District  
 Fit: Fitness Center  
 Cen: Center House

**High Interaction** (Red line)

**Low Interaction** (Green line)

**Not Much Interaction** (Black line)





# Research





# Evidence from Research

## Introduction

Research has found that better living environments can improve the lives of older people. Some of the main evidence-based findings show the benefits of social integration, intergenerational interaction, access to nature and the outdoors, and smaller-scale housing with person-centered care.



Kayoko Soman (second from right) watches kids play at a day care facility

## Social integration delays memory loss

Social integration is the way an individual is involved in social exchanges with the family, social networks, or in their communities (Hooyma & Kiyak, 2008). One study tested whether social integration preserved memory function in late life, and found that social integration delayed memory loss among elderly Americans (Ertel, Glymour, & Berkman, 2008).

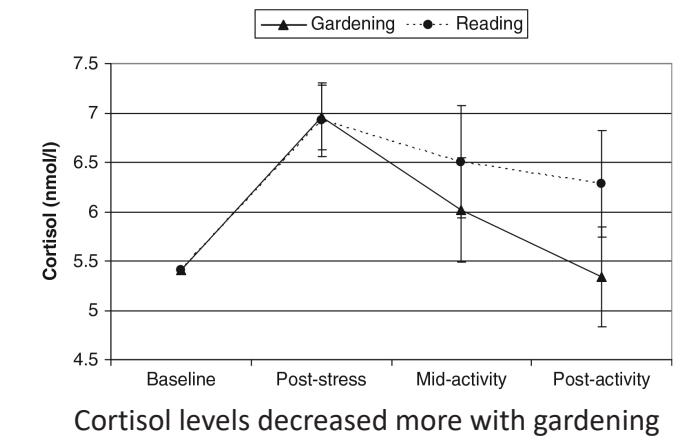
## Intergenerational interaction improves well-being

In a study by Hernandez and Gonzalez (2008), a group of students were interacting with slightly depressed elderly people. The results show that those interacting with the students tended to lower their stereotyped perception of themselves, suggesting that intergenerational interaction also can improve the well-being of older people.

Young and old play games happily



An elderly resident doing a puzzle with kids



Older person planting flowers with the help of staff



A fireplace make older persons feel warm

## Outdoor activity can reduce the stress level

Many studies show that contact with nature can promote relief from stress. For example, Rodiek (2002) found that older adults had improved cortisol, which is a biological indicator of stress, after spending time in an outdoor garden, compared with an indoor classroom (Rodiek, 2002). Van Den Berg and Custers (2011) found that when allotment gardeners had to complete a stressful job before being assigned to gardening or reading, their cortisol levels decreased more in the gardening group than the reading group, as shown in Fig 1. A systematic review also found evidence for the beneficial effects of nature and gardening activities on older adults (Detweiler et al., 2012).

## Better quality of life in small-scale living facilities

In the small-scale living facilities, a smaller number of residents live together in a homelike, "household" environment, similar to a family home. A study found that family caregivers and nursing staff were more satisfied and reported more positive experiences with small-scale living facilities, compared to conventional wards in nursing homes (Verbeek, Zwakhalen, van Rossum, Kempen, & Hamers, 2012). The Green House Project helped introduce new models for long-term care in the US. A study (Kane, Lum, Cutler, Degenholtz, & Yu, 2007) explored the effects of this model on residents' reported outcomes and quality of care, and found improved quality of life for nursing home residents.



Share happy moments before dinner





## Physical Environment Characteristics That Influence Homelike Character of Residential Facilities for Aging

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### ABSTRACT

This paper investigated which physical environment characteristics were considered most important in influencing homelike character of residential facilities for aging, based on published expert opinions. The designers should minimize “institutional” character and create the feeling of homelike. Many senior living facilities seem to satisfy older adults’ desire for independence but this may cause isolation problem. To eliminate isolation, designers should create the environments that encourage interaction with friends and family. The results of this paper can be used for making informed choices during the process of residential facilities for aging.

### KEYWORDS

Homelikeness; Long-term care; Quality of life; Older adults; Culture change; Relationships

### INTRODUCTION

A rapidly growing elderly population fuels the concern for developing better housing for the elderly. Traditional institutional facilities for older people have received much criticism for their task-oriented environmental design, which is based on the medical model. New solutions are needed to satisfy the diverse needs of the elderly population within a more acceptable and therapeutic environment (Brawley, 2008; Brummett, 1997; Schwarz, 1996).

Many experts in the field of environmental gerontology agree that “homelike” care environments hold the most therapeutic potential for older adults (Calkins, 2018; Cohen & Weisman, 1991; Regnier, 2003). “Homelike” care environments are person-centered and show respect to residents’ changing needs and choices, to bring more normalization to their daily life. Unfortunately, this goal remains unmet in many facilities for the elderly. Brummett pointed out that more than three quarters of the assisted living residents interviewed didn’t feel like at home (Brummett, 1997). The scope of this study is to explore which physical environment features are identified by experts that create a homelike atmosphere.

### METHODS

I went through the books and papers published by experts in the field of environmental gerontology and considered the physical environment features that influence homelike character of residential facilities for aging.

Works of both researchers and practitioners were chosen for this paper, because all of them are influential the field of design for aging. The sampling strategy I used was to search on Google

Scholar and find experts who are highly up-to-date, credible and important in the field of environmental gerontology. Each book or paper identified several considerations; together define a hierarchy of physical environment characteristics that are thought to influence homelike character of residential facilities for aging. Comparing these frameworks together help designers to find the commonalties between them.

### RESULTS

The frameworks showed below are selected from books and papers published by experts in the field of environmental gerontology. Each lists several elements that are thought to create a homelike atmosphere. These powerful frameworks define the essence of what homelike care environments are going to provide.

#### Cohen and Weisman: “*Holding on to Home*”, 1991

These authors focus on people with dementia and environmental design. They believe the environmental design can have a significant influence on people with dementia. The designers should minimize “institutional” character and create the feeling of belonging. There can be different kinds of activities that close to those found in homes (Cohen & Weisman, 1991).

- **Human Scale.** The traditional institutional environments usually have large building masses. Breaking it down to smaller pieces help enhance the human scale and create the feeling of home.
- **Visible Kitchen.** An open and visible kitchen can be found by residents easily. The people can smell the aroma of cooking foods from the corridor and hear the conversation during the meal.
- **Own furniture.** Familiar things from the past can help the orientation among people with dementia. Therefore, the resident should be allowed to bring their own belongings and furniture instead of built-in furniture.
- **Greenhouse.** Incorporating plants in a greenhouse can increase the residential feeling of the facility. Caring for plants can be a good activity for people with dementia.

#### Brummett: “*Essence of Home*” 1997

Brummett focuses on studying the idea of “home,” looking beyond its appearance toward its essence. He found that many assisted living residents described their environment as something other than home or homelike. His book provides a conceptual path toward solutions. Brummett (1997) identifies several design considerations to create homelike characteristics in an assisted living environment (Brummett, 1997) , including the following:

- **Personalizable Entry.** At the transition area between the public space and private space, the entry could be designed to hold some personal items. It will help older people with cognitive impairments to identify their units from others’.



- **Stages for Community Interaction.** It's not easy for assisted living residents to go outside, so shared spaces should be provided for the residents and visitors. These stages for community interaction can make the facility more productive and active.
- **Small Parking Lots.** The appearance of a large parking lot doesn't match a residential neighborhood. Parking lots should be disguised by screening such as trees and shrubs.
- **Clear Transitions.** Transition spaces distinguish one space from another to avoid ambiguous misunderstandings. Many older adults have reduced abilities to understand their environment, so the clear transitions can decrease confusion and inappropriate behavior.

### **Brawley's Gathering Spaces**

Many senior living facilities seem to satisfy older adults' desire for independence. But Brawley (2008) points out that may cause isolation problem. The extended distances from the unit to the shared space increase isolation from the community activities, especially for the residents who are less mobile. To eliminate isolation, designers should create the environments that encourage interaction with friends and family (Brawley, 2008), including the following:

- **Fireplace - "Heart of the home".** People often congregate in the living rooms where they can discover others. A fireplace in living room creates a sense of warmth emotionally and physically, especially in winter.
- **Open Kitchen.** The open farm kitchens can create engaging spaces in senior living facilities. The intimate kitchen helps to reduce stress of the residents. Food preparation creates the feeling of casual family meal.
- **Social Contact with Families.** Families can feel part of the community and less like outsiders if they can be included in a enjoyable activities, such as a special birthday meal.

Christopher Alexander and his colleagues (1977) have described four characteristics that influence the recognition of residential design, including the sloping roof, front entry, hearth, and open stairs (Alexander et al., 1977).

Zeisel (1977) said the entry is a key point of homelikeness because the entry marks the start of the home. The rest of the units should not be seen by the visitors at the front door. So a vestibule could be used to separate the outside world and the inside. A shelf or table could be placed near the front door so it's convenience for the visitors to use. In this way, older people can feel a sense of home the moment they enter (Zeisel, 1983; Zeisel, Epp, & Demos, 1977).

Schwarz (1996) described that the image of home could be found in the place where the older people remains a grandparent or a friend. In an institutional environment, the elderly is treated like "case" instead of a person and they are isolated from the big community. The food in an institutional facility could be awful. However, home-made food is always delicious. Within an institution, people just sit and wait in a barren environment; in a homelike care environment, elderly actively participate different kinds of activities and communicate with one another. The

designer should provide a homelike care environment because it's the setting we want for our parents and friends (Schwarz, 1996).

Regnier (2003) described several design considerations of assisted living. He described the entry experience is important to make good first impression of "home". the entry experience should be elegant, friendly and memorable. He also mentioned several physical environment characteristics that make sense of home, such as building configuration, personalizing the unit edge, pleasant dining area and meeting spaces (Regnier, 2003).

### **Discussion**

Some of the characteristics were mentioned many times so it's regarded to be important by those influential. From all these frameworks listed above, we could find the commonalties between them which are regarded as most important factors that can influence homelike character of residential facilities for aging.

### **Gathering Spaces**

Bring older people to gather in shared spaces can stimulate social interaction. Elderly who stay at home may have a socially isolated life. While in a group living environment, elderly can have the opportunities to interact with others and have control over their interaction with others. A small table can be placed near the kitchen so residents can just sit down and have an informal conversation (Brawley, 2008; Brummett, 1997; Lawton, 1986; Regnier, 2003; Zeisel, 1983; Zeisel et al., 1977).

### **Friendly entry experience**

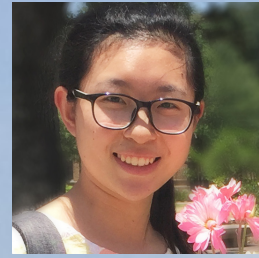
The front door should be personalizable and friendly so the visitors can have good first indication. Repeated entry of all units may be confusing. While a personalizable front door will be good for wayfinding and can be the placement of personal items, such as plants, photos, etc). The units entry can be layered off the circulation system to provide the opportunities for personalization. The personalizable entry can also acts as transition area between shared space and private space (Alexander et al., 1977; Brawley, 2008; Brummett, 1997; Calkins, 2009; Cohen & Weisman, 1991).

### **Conclusions and recommendations**

By looking through the works of influential people in the field of design for aging, several physical environment characteristics are identified as most important factors that can influence homelike character of residential facilities for aging. The main finding of this paper can be used in the process of designing residential facilities for aging. To create a sense of "home", designers should pay attention to the gathering spaces and encourage the elderly to interact with family and friends.



# Design Solutions



LIANG ZHAO  
Landscape



HAO HUANG  
Architecture





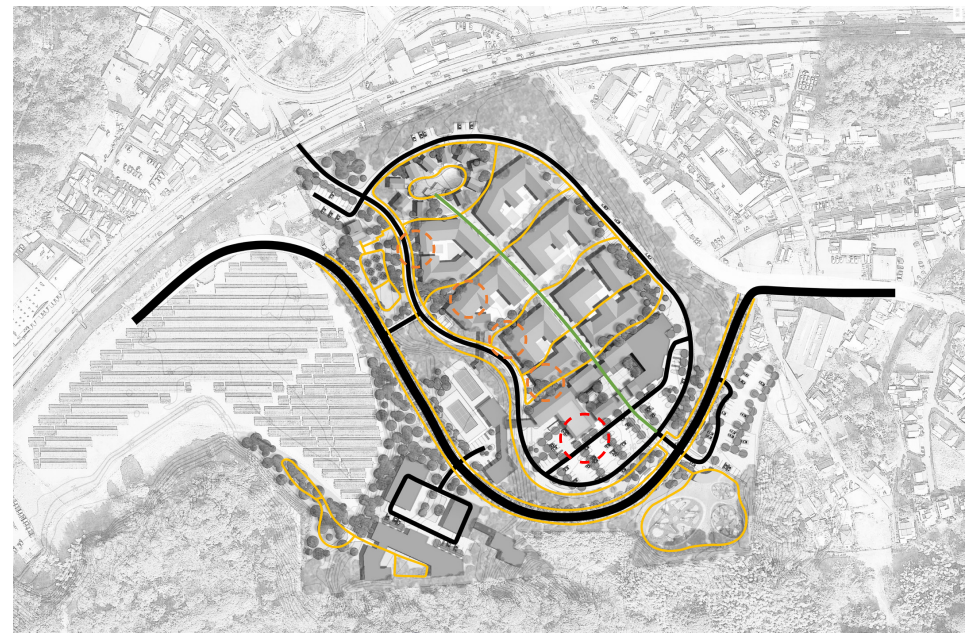




# Master Plan

## Introduction

Komorebi No Sato is a peaceful intergenerational community with natural environments and diverse multi-functional spaces. It includes a mixed-used area, an intergenerational living area, a fitness area, memory care facilities, a kid's park, and a tea house area. A proposed city road and a secondary service road serve as vehicular circulation that connects the community with the surrounding areas. A pedestrian-friendly promenade and nature trails provide safe and natural environments for residents to engage in distinctive activities. The sunlight filters through the preserved existing vegetation and new proposed trees that create a tranquil environment for everyday life.



Plan analysis - circulation 計画分析 - 循環路

- Nodes
- Zocalo
- Primary Road
- Secondary Road
- Promenade
- Walking/Jogging trails



## Legend

<b>Residential</b>	
MC - Memory Care	100
AL - Assisted Living	100
IL - Independent Living	100
CO - Condominiums	84
SH - Shared housing	101
DH - Detachde Housing	10
<b>Total No. of Residents -</b>	<b>495</b>

## Services/Activities

- FC - Fitness Center
- CH - Center House
- DS - Day Service Center
- SM - Super Market
- RS - Restaurant
- GH - Guest House
- Bus - Bus Stop
- PG - Putting Green

## Outdoor Amenities

- ZO - Zocalo
- KP - Kids Park
- TC - Tennis Court
- P - Parking

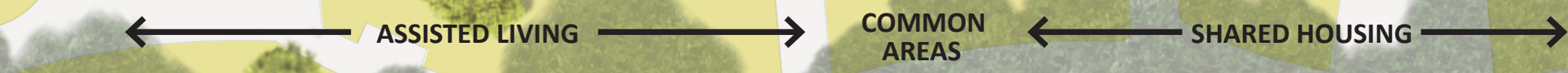








# Cluster Design



**Personalizing Alcove**  
An alcove acts as transition area between units and public places. Residents can take off shoes, hang some personal photographs and paintings to express self identity.

**Unit Clusters Around Dining**  
Clustering units around a common space to create opportunities for social interaction and friendship formation.

**Livable Corridors**  
Making part of the corridor a living room provides a convenient place for residents to sit on their way back and forth to their units.

**Small Shrubs for Privacy**  
Serves as a living privacy fence to provide privacy from the pathway and Creates a sound barrier to reduce noise.



ASSISTED LIVING (3 Floors total)	SHARED HOUSING (3 Floors total)
18 units @ 31 m <sup>2</sup>	15 units @ 51 m <sup>2</sup>
Resident unit 568 m <sup>2</sup>	Resident unit 766 m <sup>2</sup>
Common area 585 m <sup>2</sup>	Common area 510 m <sup>2</sup>
Total floor area 1,153 m <sup>2</sup>	Total floor area 1,277 m <sup>2</sup>

**Playground for Children**  
Older residents enjoy watching children play. Small children are good at providing unconditional love and affection.

**Attracting Wildlife**  
Birds are friendly and very interesting to watch, especially in the winter. Squirrels are very lively and entertaining.



# A Homelike Experience



The entry creates a homelike feeling at the start of the home. It separates the outside and the inside world, with different seating near the front door.

Seating area near entrance with beautiful flowers











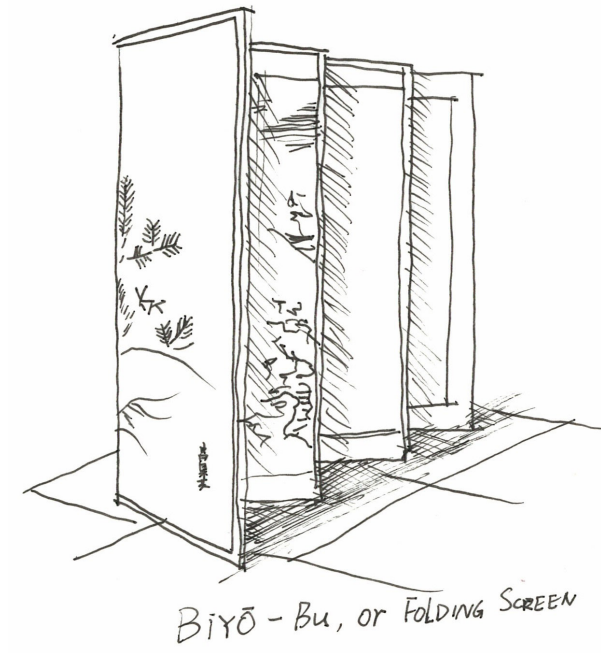
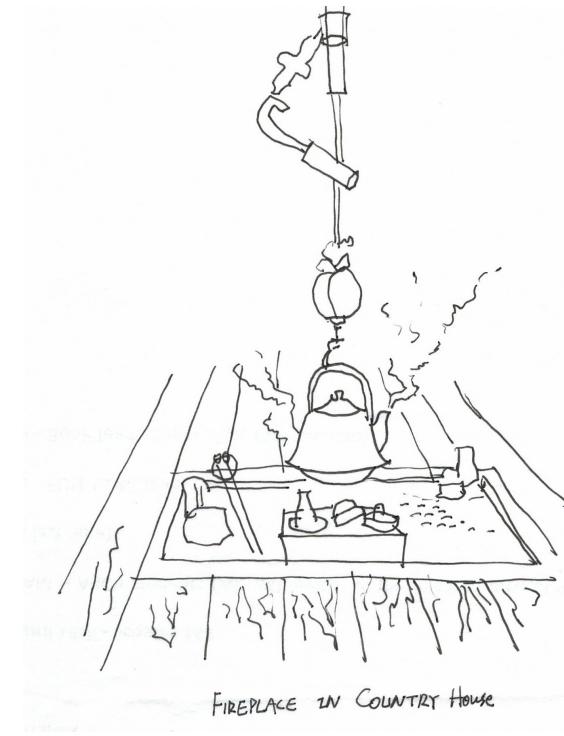








## Intimate dining experience



### Gathering spaces stimulate social activities

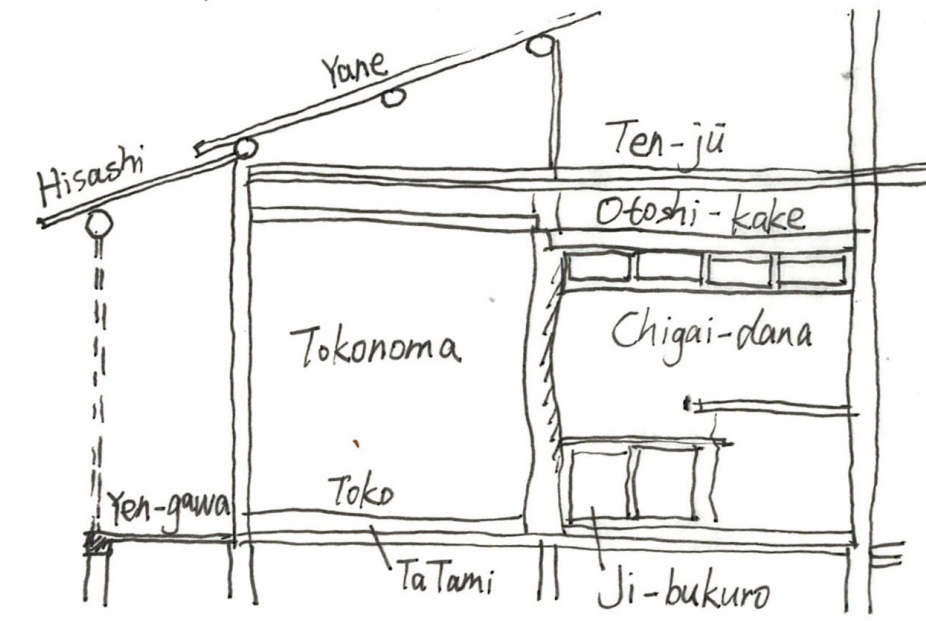
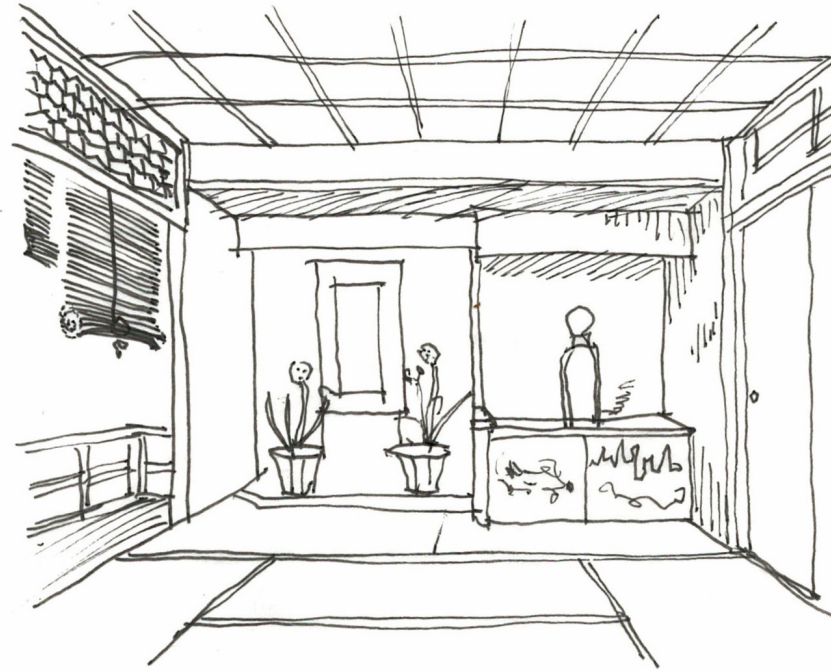
Having shared common spaces will make it easy for older adults to interact with others, in a group living environments. Games, music, gardening and other activities can be shared by everyone.

Intimate dining experience in family-style meals





# Units Design

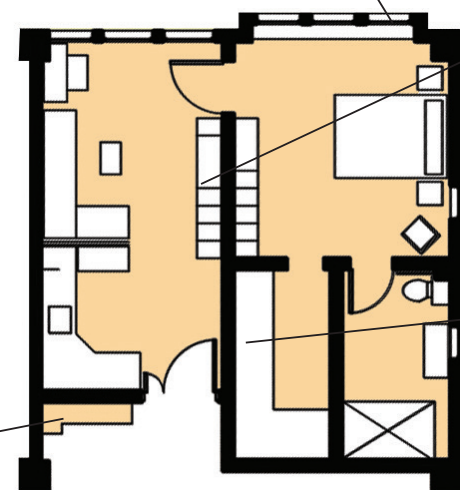


Section Through Verandah



### Six-foot Tall Windows

Large windows with low sills allow more light to enter and help the residents experiencing the outdoors from the unit.



Shared Housing Unit 51 m<sup>2</sup>

### Area for display

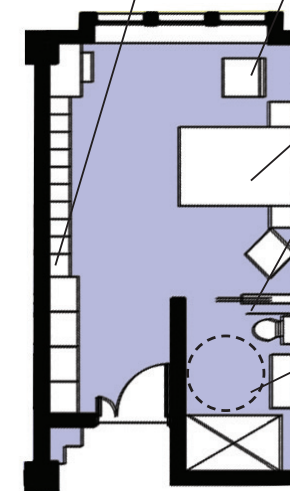
Allow people to express self identity by personal items display.

### Room for Storage

Residents may have many personal items and there can never be too much storage for them.

### Modular wall units

Personalize living and especially sleeping areas for people who have to move into a facility from their larger home.



Assisted Living Unit 31 m<sup>2</sup>

### Seatings for visitors

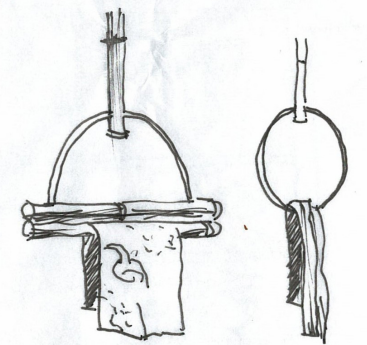
Family and friends should feel that they are welcome, it will encourage them to visit more often.

### Easy Access

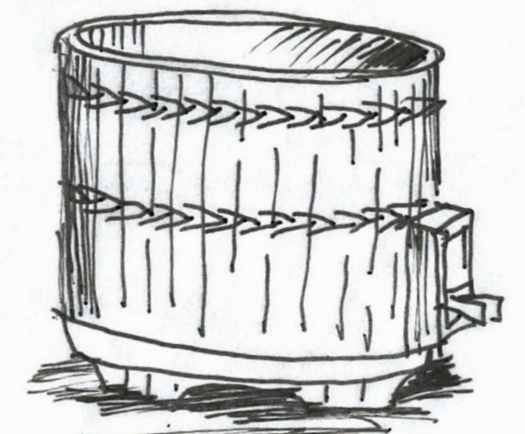
Provide easy access from the bed to the bathroom to decrease the amount of falls and accidents.

### Five-foot Circle

Provide for an area large enough to hold a five-foot circle to allow a wheelchair 360-degree turn.



TOWEL RACKS



BATH-TUB WITH SIDE OVEN



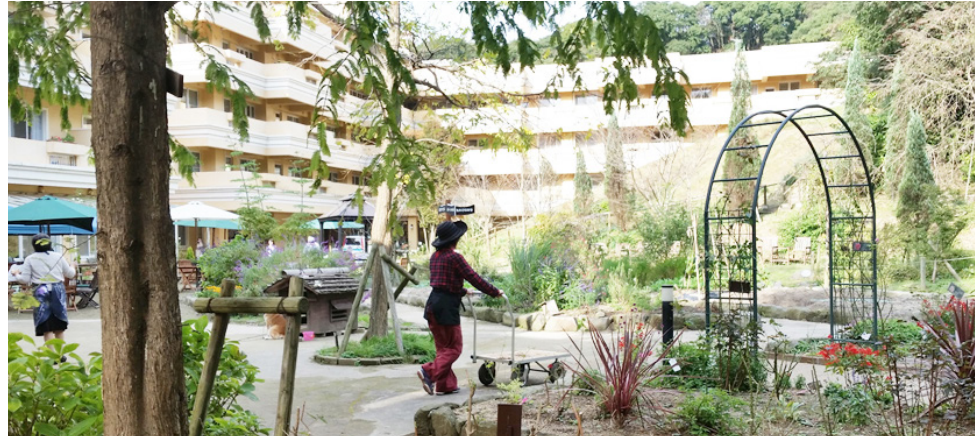








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## CAREER GOALS

- To develop design solutions through the conscientious, explicit and judicious use of current best evidence from research and practice
- To make a real contribution to the development of design for aging and improve the life quality of older adults in their later years

## EDUCATION

- 2016-pres. **Master of Architecture Candidate**, Texas A&M University, Graduation Sched. May 2018  
**Final Study: Intergenerational Continuing Care Retirement Community in Japan**  
**Advisors: Susan Rodiek, Ph.D., Zhipeng Lu, Ph.D., Chanam Lee, Ph.D., Ray Pentecost, Ph.D.**
- 2012-14 **Bachelor of Architecture**, South China University of Technology(SCUT), Guangzhou, China  
Five-year Professional Degree

## HONORS & AWARDS

- 2018 **Best Analysis Award, Annual SES Student Health Design Competition Charette**, Texas A&M
- 2017 **Design for Aging Scholarship**, top 5% of 100 students, Texas A&M
- 2017 **Edward J. Romieniec Graduate Traveling Fellowship**, top 10% of 100 students, Texas A&M
- 2017 **Excellence in Diversity Award**, top 30% of 15 teams, Texas A&M
- 2014 **One of "Top Ten Students of the Year,"** Solar Decathlon Team, Top 1% of 20,000 students, SCUT
- 2013 **Second Prize, Solar Decathlon China Competition**, Top 10% of 22 teams from 13 countries, SCUT
- 2012 **National Scholarship**, Top 2% of 197 students, SCUT

## RESEARCH EXPERIENCE

- 2016-pres. **Homelike care environments for older people**, Texas A&M  
Advisors: Susan Rodiek, Ph.D., Marcia Ory, Ph.D.
- 2016-pres. **Senior living environments: evidence-based design strategies**, Texas A&M
- 2016 Art, architecture and nature in Chichu Art Museum, Student Research Week, Texas A&M
- 2012-14 "Challenge Cup" College Students Extracurricular Academic Science and Technology Research,  
Building Information Modeling In Solar-powered Houses, SCUT
- 2012 Student Research Program, Simulation on Fire and People Evacuation, SCUT

## INTERNSHIP

- 2014-15 **Poor Families Housing Renovation for Older People**, Chuangsiwei Organization  
**Communicated with older people**, social worker, Government officials and etc
- 2012-13 Jiangmen Sports Center Design, Architectural Design Institute in Guangzhou  
Coordinated between engineering disciplines and architectural design

## VOLUNTEER

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- 2016 Volunteer for Grace Bible Church Big give away, College Station, TX

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Musical Instrument - Ukulele  
Sports - Badminton, Swimming, Running