Self-introduction

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Self-introduction

- 1. About Me
- 2. About My University
- 3. About My Lab
- 4. Master Project
- 5. PhD Project
- 6. Research Plan

1. About Me

Name: Xiaopeng Li

SC version: 李晓鹏

Hometown: Changsha, Hunan Proveince

Zedong Mao

Xiang Cuisine

Wulingyuan Scenic Area, Zhangjiajie

2. About my university

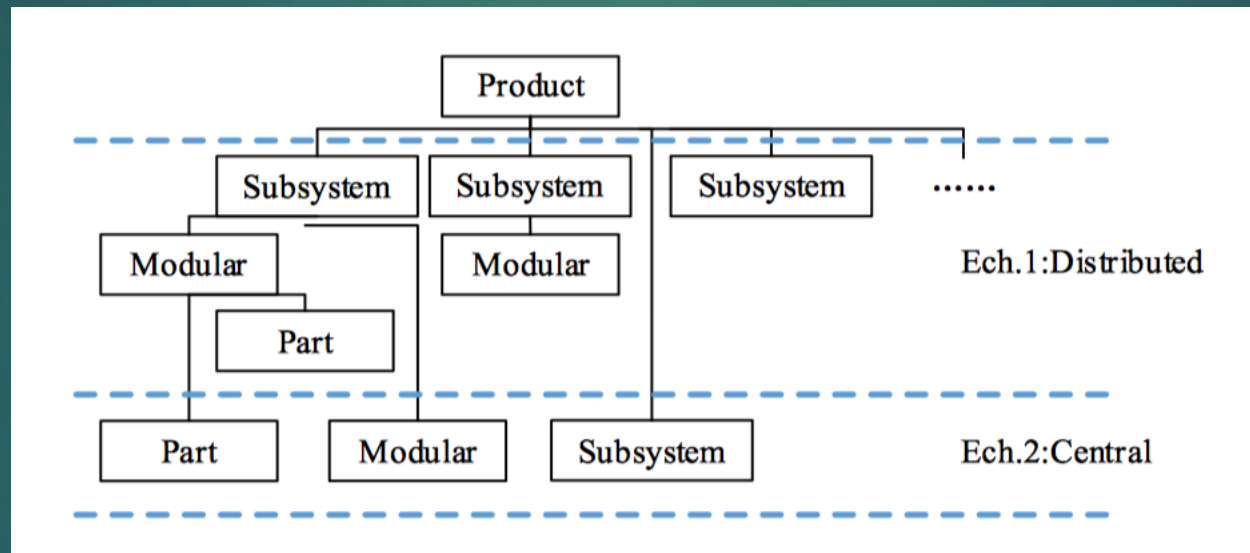**Tianjin University, 1895 -- present**

3. About my lab

▶ **Quality, Warranty Managment**

▶ **Photographed by …**

4. Master Project

▸ **Warranty policy design and service operations optimization in automobile industry**, a project supported by *National Natural Science of Foundation of China* (No. 71171142).

4. Master Project

$$P_1 : \min \sum_{i \in I} \sum_{j \in J} \sum_{m_D \in M_D} \sum_{m_C \in M_C} \sum_{o \in O} w_{ij} \big[C_{ijm_Do} y_{ijm_D} + (1 - z_{im_D}) C_{ijm_D m_C o} y_{ijm_C} \big] x_{m_D} x_{m_C}$$

$$+ \sum_{m_D \in M_D} x_{m_D} F_{m_D} + \sum_{m_C \in M_C} x_{m_C} F_{m_C}$$

$$s.t. \quad \sum_{m_D \in M_D} y_{ijm_D} = 1, \forall i \in I, \forall j \in J \quad (1)$$

$$\sum_{m_C \in M_C} y_{ijm_C} = 1, \forall i \in I, \forall j \in J \quad (2)$$

$$x_{m_D} - y_{ijm_D} \geq 0, \forall m_D \in M_D, \forall i \in I, \forall j \in J \quad (3)$$

$$x_{m_C} - y_{ijm_C} \geq 0, \forall m_C \in M_C, \forall i \in I, \forall j \in J \quad (4)$$

$$x_{m_D} - z_{im_D} \geq 0, \forall m_D \in M, \forall i \in I \quad (5)$$

$$\sum_{m_D \in M_D} x_{m_D} = n_D \quad (6)$$

$$\sum_{m_C \in M_C} x_{m_C} = n_C \quad (7)$$

$$F_{m_D} = \sum_{i \in I} f_i z_{im_D}, \forall \, m_D \in M_D \quad (8)$$
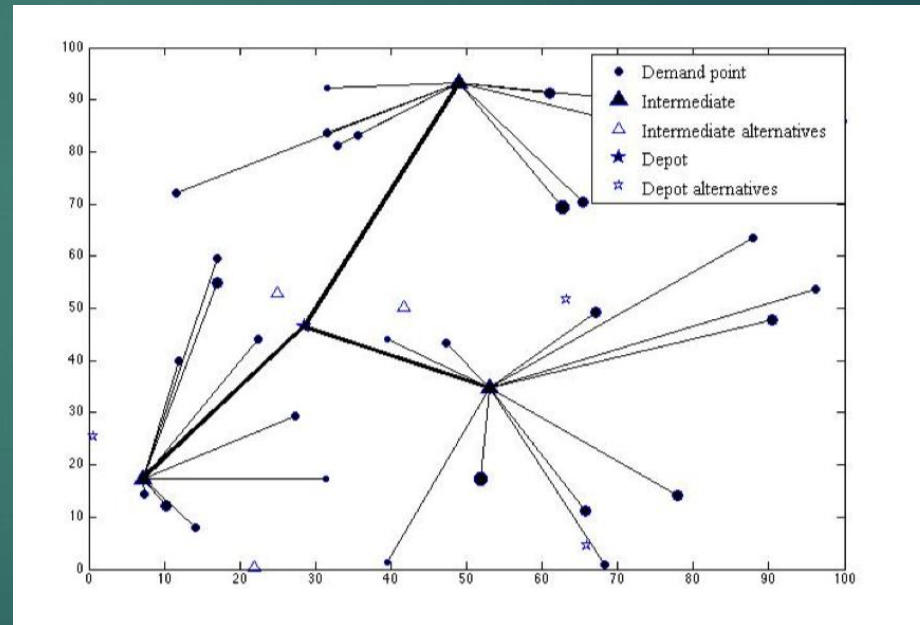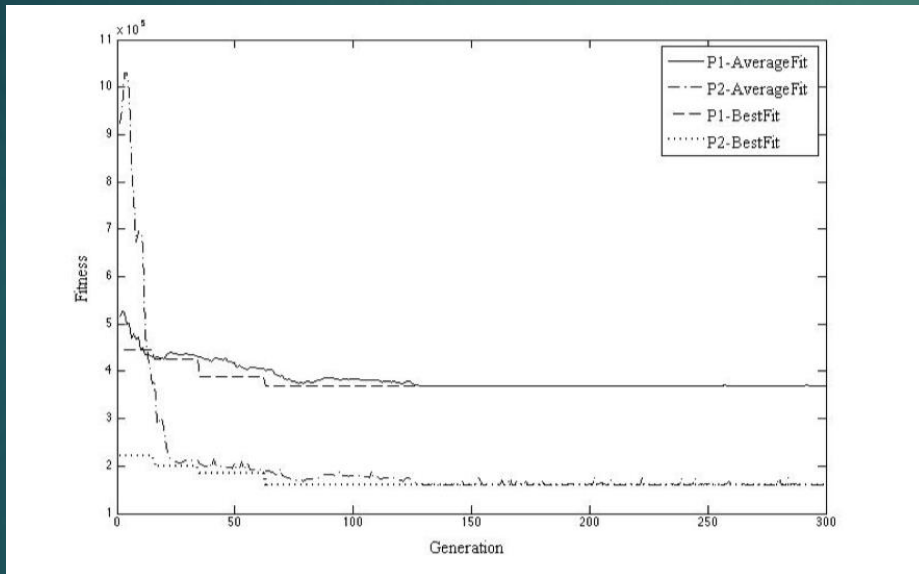
$$F_{m_C} = \sum_{i \in I} f_i \quad (9)$$

$$z_{im_D} = \{0,1\}, y_{ijm_D} = \{0,1\}, y_{ijm_C} = \{0,1\}, x_{m_D} = \{0,1\}, \ x_{m_C} = \{0,1\} \quad (10)$$

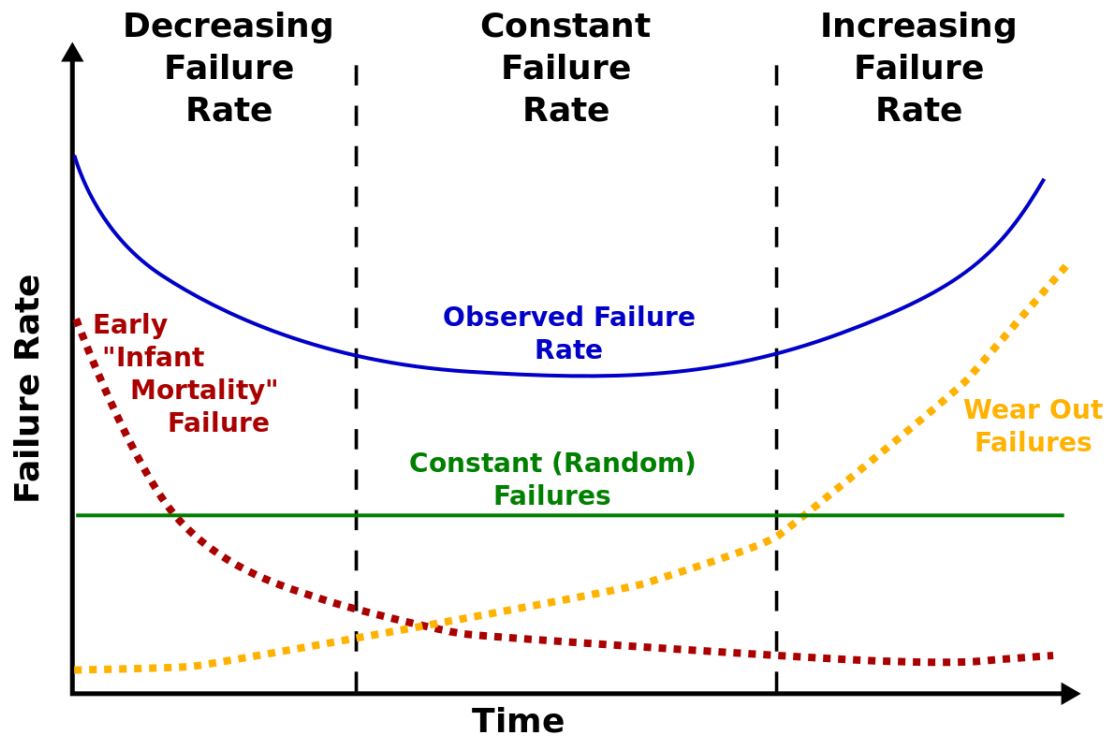|	QUEUING TIME	
C_{ijm_Do}	o_1:Repair	$= c_{jm_D} + cs_i$ (11)
	o_2:Transship	$= c_{jm_D}$ (12)
$C_{ijm_D m_C o}$	o_1:Repair	$= c_{m_D m_C} + cs_i$ (13)

|		
T_{ijm_Do}	o_1:Repair	$= t_{jm_D} + rt_{im_D}$ (14)
	o_2:Transship	$= t_{jm_D}$ (15)
$T_{ijm_D m_C o}$	o_1:Repair	$= t_{m_D m_C}$ (16)

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4. Master Project

5. PHD PROJECT

Study on warranty policy and warranty service operations, a key project supported by *National Natural Science of Foundation of China* (No. 71532008)

For many durable products, burn-in is an important production process in which products are operated under certain actual working stress for a period of time, so as to deal with those particular components that would fail in the stage of initial, high-failure rate portion of the bathtub curve of component reliability.
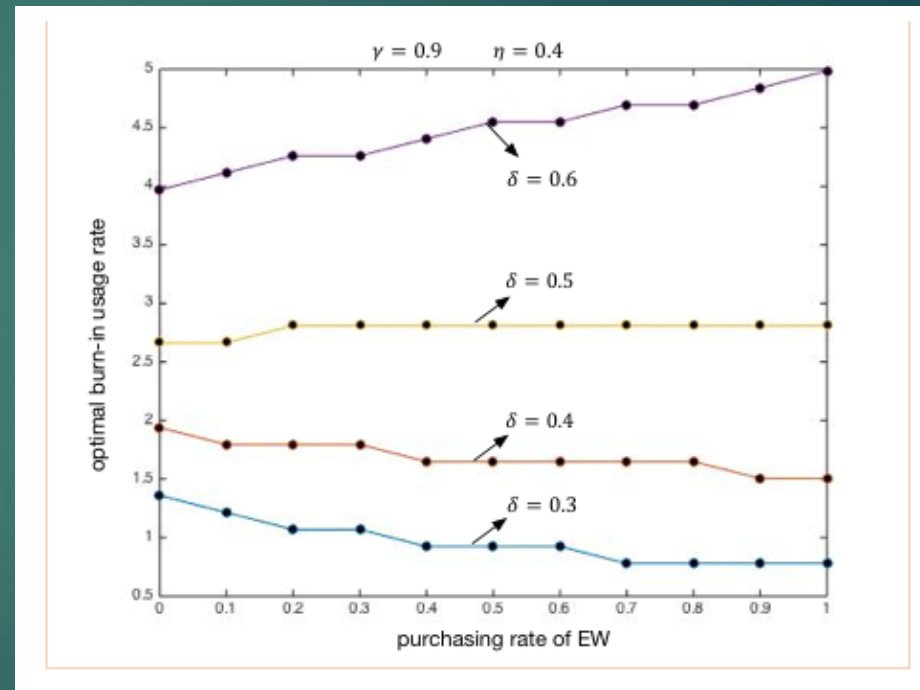
5. PHD PROJECT
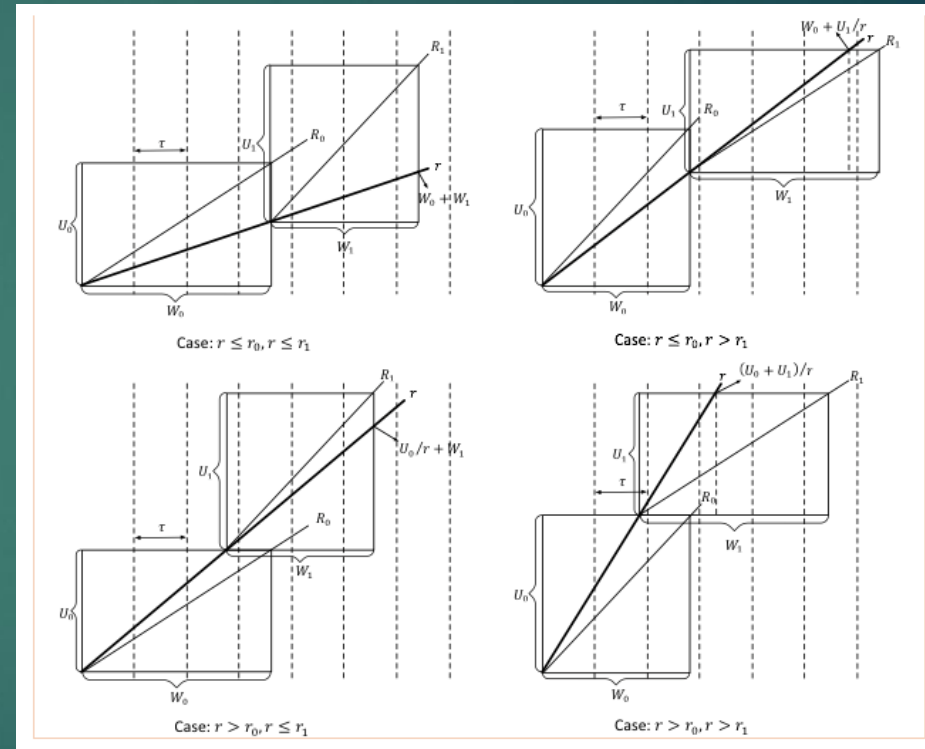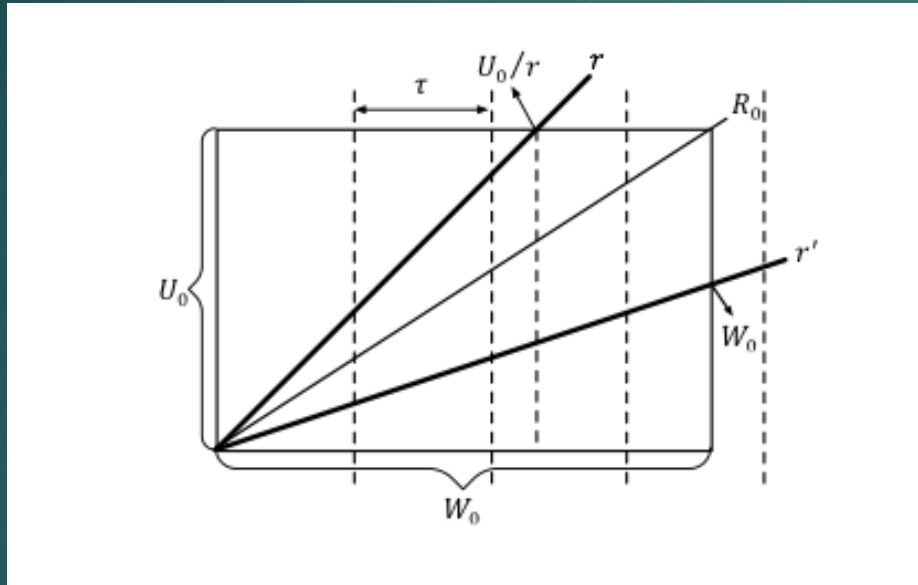
5. PHD PROJECT

Optimal burn-in usage rate under different maintenance degree (Optimal burn-in duration is upper bound)
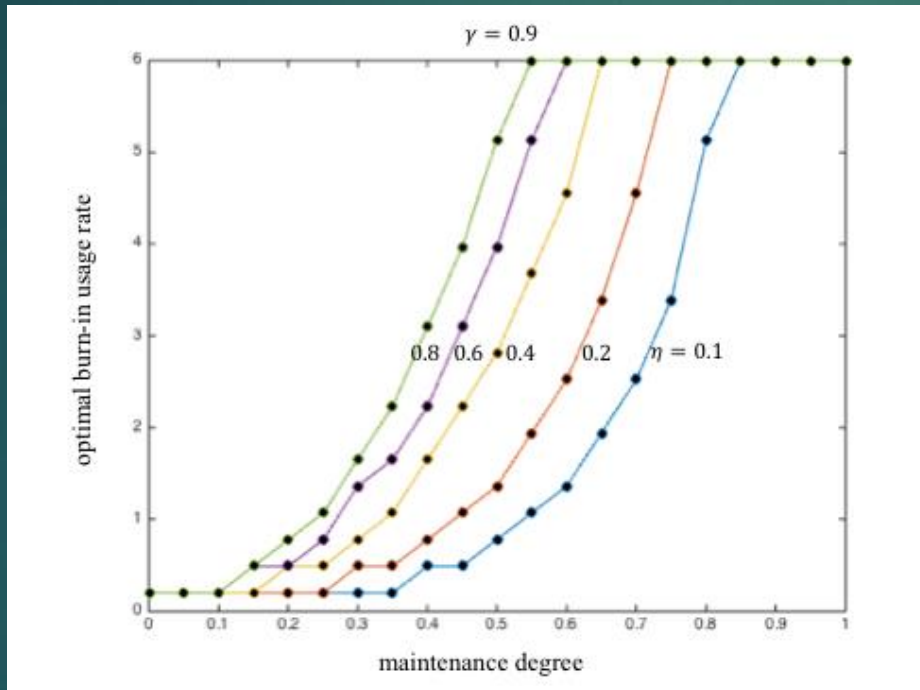
Optimal burn-in usage rate under different purchasing rate of EW (Optimal burn-in duration is upper bound)

6. Research plan

- **Keywords:**
  - **Resilience-Driven**
  - **Availability-based**
  - **Warranty**

THANKS!