AUTOMATION AND LABOR: ETHICS IMPACT

EXPLORING THE SOCIAL AND ETHICAL DIMENSIONS

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ETHICS AND PROFESSIONS

INTRODUCTION

- **Industrial Revolution (1800s):** Mechanical looms and steam power reduce manual labor.
- **20th Century:** Introduction of robotic arms (e.g., in car factories).
- **21st Century:** AI-driven automation – software bots, smart assistants, self-driving vehicles.
- The scale and complexity have never been higher.

BRIEF HISTORY OF AUTOMATION

- **Automation** refers to the use of technology to perform tasks with minimal human intervention.
- Increasingly used in factories, offices, homes, and transportation.
- Raises ethical questions: Who loses their job? Who is accountable when things go wrong? Is it fair?
- Today's focus: Real-world examples, ethical frameworks, labor impact, and security concerns.

HOW AUTOMATION WORKS TODAY

- **Core components:** AI, sensors, machine learning, big data.
- Examples:
  - Robots in Amazon warehouses
  - AI chatbots in customer service
  - Autonomous vehicles like Tesla
- Not all automation involves physical robots—software bots can do office work too.

BENEFITS OF AUTOMATION

- **Efficiency:** Machines don't tire or need breaks.
- **Cost savings:** One-time investment in automation often replaces multiple salaries.
- **Accuracy and consistency:** Reduces human error.
- **Safety:** Takes over dangerous jobs like bomb disposal, toxic environments.

TESLA AUTOPILOT

- Tesla markets "Autopilot" and "Full Self-Driving" features.
- However, the car is not fully autonomous and requires constant supervision.
- **Incidents:** Crashes where drivers misused or over-relied on the system.
- **Ethical issue:** Is the driver to blame, or Tesla for misleading branding?
- https://www.nhtsa.gov/press-releases/tesla-autopilot-investigation

ETHICS CASE – UBER SELF-DRIVING FATALITY

- **2018:** First pedestrian death by an autonomous vehicle in Arizona.
- A safety driver was in the car but distracted.
- The vehicle didn't recognize the person crossing the street.
- Uber paused its self-driving program.
- **Key ethics issue:** Should unproven technology be tested on public roads?

WHO IS RESPONSIBLE

- **Tesla/Uber** (the company)?
- **Software developers** (code logic failure)?
- **Driver/safety monitor** (negligence)?
- **The government** (lack of regulation)?
- Responsibility can be distributed, but law often wants a single party to blame.

ETHICS FRAMEWORKS OVER

Framework	Core Idea	Application to Automation
Virtue Ethics	Focus on character and integrity	Are companies acting with honesty and care?
Utilitarianism	Maximize overall happiness	Does automation benefit more people than it harms?
Deontology	Follow rules/duties	Are developers meeting moral and professional obligations?

LABOR DISPLACEMENT

- **Oxford Study:** 47% of US jobs at risk of automation.
- Affects low- and mid-skill roles first (e.g., truck driving, retail, admin).
- **New jobs** are created (AI trainers, robot repair), but often require higher skills.
- **Key concern:** Not all workers can transition quickly or afford retraining.

REAL-WORLD EXAMPLES

- **Amazon:** Thousands of warehouse robots → faster deliveries, fewer humans.
- **McDonald's:** Automated kiosks reduce front-line staff.
- **Call Centers:** AI voice agents replace human reps.
- **Grocery Stores:** Amazon Go allows walk-out shopping with sensors—no cashiers.

FUTURE OF WORK

- Rise of **"centaur jobs"**: Human + AI collaboration (e.g., radiologists using AI).
- Demand for tech literacy, adaptability, emotional intelligence.
- Education and training systems must evolve.
- Ethical employers must invest in upskilling employees.

CORPORATE RESPONSIBILITY

- Ethical companies should:
  - Communicate clearly what AI can/can't do.
  - Provide retraining or relocation assistance.
  - Avoid deceptive marketing (e.g., "Full Self-Driving").
  - Practice algorithmic transparency.

WHAT CAN BE DONE?

- Include **ethicists** in AI design teams.
- Set industry **safety standards** for automation.
- Use diverse, unbiased datasets.
- Build in **accountability structures**—logs, audits, failsafes.

KEY QUESTIONS FOR CLASS DISCUSSIONS?

1. Who should be held accountable when automation causes harm?
2. Should companies be allowed to test self-driving cars on public roads?
3. Should "Full Self-Driving" marketing be banned if the system isn't autonomous?

COMPUTER SECURITY AND AUTOMATION

- **Risks:** Hacking into self-driving cars, smart homes, hospital equipment.
- **Real cases:** Jeep hacked remotely (2015), Tesla vulnerability reports.
- **Security Measures:**
- Encrypted communications
- Redundancy/fail-safes
- Regular updates and patches

RECAP

- What does **virtue ethics** say? Companies should act with honesty and care.
- What does **utilitarianism** say? Must weigh job loss vs. productivity gains.
- What does **deontology** say? Developers have duties to prevent foreseeable harm.

CONCLUSION

- Automation is reshaping work faster than expected.
- Ethical, fair, and secure design is not optional—it's essential.
- We must act now to steer automation toward the public good.

SOURCES

- National Highway Traffic Safety Administration (NHTSA)
- NTSB Report on Uber crash
- Pew Research, Stanford HAI, Oxford Economics
- Scholarly articles, course readings