Fields of Expertise

- AI research in the 60’s, thesis topic "A program to play chess end games" (Stanford University 1968)
- Programming methodology
- Distributed systems, fault-tolerant systems
Awards

- 2008 Turing Award
- 2004 IEEE John von Neuman Medal
Early life & early career

- Born November 7, 1939, neé Barbara Jane Huberman
- BA in mathematics at the University of California, Berkeley in 1961
- Mitre Corporation
- Venus Computer, CLU, Argus
Programming methodology

- Study of structuring programs
- Programming paradigms (top-down, bottom up)
- “Software Crisis” of 1960/1970
- CLU, object-oriented programming principles
Liskov Substitution Principle (LSP)

Subtype Requirement: Let $\phi(x)$ be a property provable about objects $x$ of type $T$. Then $\phi(y)$ should be true for objects $y$ of type $S$ where $S$ is a subtype of $T$. 
Liskov Substitution Principle (LSP)

“if you have a type that is a subtype of another type and you use an object of that subtype in a context where you expect an object of the supertype, then the object of the subtype ought to behave like you expect. In other words you’re depending upon the specification of the supertype and the object should meet that specification even though it might belong to a subtype.”
Distributed Systems

- Byzantine Fault-Tolerance
- 1999 with Miguel Castro: the "Practical Byzantine Fault Tolerance" (PBFT) algorithm
Liskov’s Legacy

“Liskov's achievements underpin virtually every modern computing-related convenience in people's daily lives.” (MIT News 2009)
Current research & interests

- Leads the Programming Methodology Group at MIT
- Promotes diversity & making CS a more welcoming field for women
- Data protection and the security of cloud computing


- Liskov 2010: The Power of Abstraction
  (https://www.youtube.com/watch?v=GDVAHA0oyJU)
Conclusion: “Secret of her success”

“I always went home at night, and didn’t work in the evening,” she said. “I always found that downtime to be really useful.”

- Liskov
Questions?