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Testing at
Google™



Organize the world's information
and make it universally
accessible and useful.

career

books

movies

pets

catalogs

art

statistics

music

reviews

toys

photographs

quotes

products

news

research

history

Organize the world's information
and make it universally
accessible and useful.

childcare

email

people

addresses

business

health

catalogs

pediatrics

education

sports

maps

food

tickets

autos

Google Today

Company Snapshot

- Employees: >6000 worldwide
- Office Locations: More than 20 offices worldwide

Market and Technical Snapshot

- Current Index: Largest collection of documents searchable on the web
- International: More than half our searches come from outside the U.S.
 - 109 interface languages and 112 international domains
- Market share: 59.7% of worldwide search results pages/searches.
(Source: comScore qSearch, October 2005)
- Cereal Consumption: Mountain View Googlers consume 500 lbs. of breakfast cereal each day (source: Google chefs)



• "Most Intelligent Agent on the Internet"



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Challenges...

Huge Technical Challenges

Finding the content (the science of crawling)

Ranking the content (proprietary algorithms)

Reliability: machines will go down

Freshness: Keeping index up-to-date

Speed: With 100s of millions of queries/day

Monitoring: Massive distributed system state

Integrity: Bit errors when managing terabytes

Hardware: Tens of 1000s of custom machines

more » than just search



Google™

our culture...

Life at Google

- Many small teams working closely together
 - Everyone eats at Google café
 - Cross department interaction
 - Emphasis on innovation and commitment means hands-on contribution by everyone
 - Everyone wears several hats
- We make sure every idea is heard.
- Google engineers have “20 percent time”

Great Benefits

- Flexible environment
- Fun atmosphere
- Free gourmet meals
- On-site massage, doctor, and dry-cleaning
- And all those “standard” things...
 - Medical and dental coverage
 - Vacations
 - 401K plans
 - Roller hockey...



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Careers...

Google has experts in...

- Testing and Development – of course!
- Hardware
- Networking, distributed systems, fault tolerance
- Machine learning, statistics, information retrieval, AI
- Data structures, algorithms
- User interfaces
- Compilers, programming languages
- Product design
- Mechanical engineering
- Technical Writing
- ...and much, much more

Googler Skills

Core Skills for all Googlers

- Computer Science
- Solid Programming
- Diverse Interests
- Passionate
- Creative
- High-energy
- Self Starter
- Customer Focused
- Skilled Communicator

Software QA Engineer focus more on...

- Coding
- Automation
- Leadership/ Broad Scope
- Functional Testing

Software Engineer Test focus more on...

- OO Coding
- Infrastructure
- Automation Tools
- System Testing

Software Engineers focus more on...

- OO Coding
- Design/Architecture
- Research

More Testing

More Coding

Google advantages...

- Engineering centric culture
- Fast time to market
- Small company atmosphere
- More autonomy for developers
- Diversity of interesting projects
- Fluid internal job market
- An environment which fosters innovation
- Interesting team of industry experts
- Great tuition aide program
- Food

Google™

Career Opportunities for you

We have openings for full-time and internship opportunities available now!

For more information, please visit:

google.com/jobs/students.html

Appendix



Labs.google.com, Google's technology playground.

Google labs showcases a few of our favorite ideas that aren't quite ready for prime time. Your feedback can help us in play with these prototypes and send your comments directly to the Googlers who developed them.

New! **Groups 2 Beta** - An update to Google Groups

Create and join searchable discussion groups and mailing lists

5/12/04 - [Give us feedback](#) - [Discuss with others](#)

Personalized Web Search

Get personalized search results based on your interests

3/29/04 - [Give us feedback](#) - [Discuss with others](#)

Web Alerts

Find out about new web pages on a topic of interest

3/29/04 - [Give us feedback](#)

Froogle Wireless

Search for products from your cell phone using Froogle

2/24/04 - [Give us feedback](#) - [Discuss with others](#)

Google Deskbar - [Download now](#)

Search using Google without opening your browser

11/6/03 - [Give us feedback](#) - [Discuss with others](#)

Google Compute - [Download now](#)

Donate your computer's idle time to help scientific resea

3/26/03 - [Give us feedback](#) - [Discuss with others](#)

Google Sets

Automatically create sets of items from a few examples

5/20/02 - [Give us feedback](#) - [Discuss with others](#)

Google Webquotes

View search results with quotes about them from other sites

12/10/02 - [Give us feedback](#) - [Discuss with others](#)

Graduates of Labs

- Search by Location**
Restrict your search to a particular geographic area
- Google Glossary**
Find definitions for words, phrases and acronyms
- Google News Alerts**
Specify a topic and receive email updates when news breaks

All Engineers get to use
20% of their time to
explore & invent.

No questions asked.

Fundamental Research

- Structure of Web
- Interests of Users
- Trends and Fads
- Languages
- Sets
- Relationships
- Facts

Google Zeitgeist - Search patterns, trends, and surprises according to Google

For both breaking news and obscure information alike, people around the world search on Google at www.google.com. With a bit of analysis, this flurry of searches often exposes interesting trends, patterns, and surprises.

On a monthly, weekly, and sometimes daily basis, this Google Zeitgeist page will be updated to reflect lists, graphs, and other tidbits of information related to Google user search behavior.

Archived information [available here](#).

2001 Year-End Google Zeitgeist [available here](#).

December 2001 Zeitgeist

Top 10 Gaining Queries

December 2001

1. [seqway](#)
2. [navidad](#)
3. [george harrison](#)
4. [herr der ringe](#)
5. [pearl harbor](#)
6. [christmas carols](#)
7. [hanukkah](#)
8. [norad](#)
9. [vanilla sky](#)
10. [orlando bloom](#)

Top 10 Declining Queries

December 2001

1. [taliban](#)
2. [PLU-82](#)
3. [melbourne cup](#)
4. [leonid meteor shower](#)
5. [michael jackson](#)
6. [melanie thornton](#)
7. [hurricane michelle](#)
8. [star wars trailer](#)
9. [thanksgiving recipes](#)
10. [pink floyd](#)

Languages Used to Access Google - December 2001

| Language | Percentage |
|----------|------------|
| English | 57% |
| German | 12% |
| Japanese | 7% |
| Spanish | 6% |
| French | 5% |
| Chinese | 3% |
| Italian | 2% |
| Other | 8% |

Web Browsers Used To Access Google

March - December 2001

| Browser | Usage % (Mar) | Usage % (Dec) |
|--------------|---------------|---------------|
| MSIE 5.5 | ~15% | ~45% |
| MSIE 5.0 | ~45% | ~35% |
| MSIE 6.0 | ~5% | ~25% |
| MSIE 4.0 | ~5% | ~5% |
| Netscape 4.x | ~25% | ~10% |
| Other | ~10% | ~10% |

Translations / Day

December 2001

| Language Pair | Translations / Day |
|--------------------|--------------------|
| English to German | ~100 |
| English to Spanish | ~70 |
| English to French | ~50 |
| German to English | ~30 |
| French to English | ~20 |
| Spanish to English | ~10 |

Google Tests Differently

- Develop tools and test harnesses
- Use a broad variety of testing techniques
- Automate, automate, automate!
- Testers are core members of the project
- Quality starts the moment designing starts
- Data and metrics used to make decisions

Google Test Top 10

10. Google is different than everyone else.
9. Participate in the whole project lifecycle
8. Work with a lot of different kinds of people.
7. Get lots of experience in coding.
6. Testing makes you a better developer.
5. Opportunity for research.
4. See all the coolest new products first!
3. Break other people's code 😊
2. Learn from the experts.
1. Break things for a living!