



aws INNOVATE

AI/ML EDITION

24 February 2022

Workplace safety with Amazon Rekognition

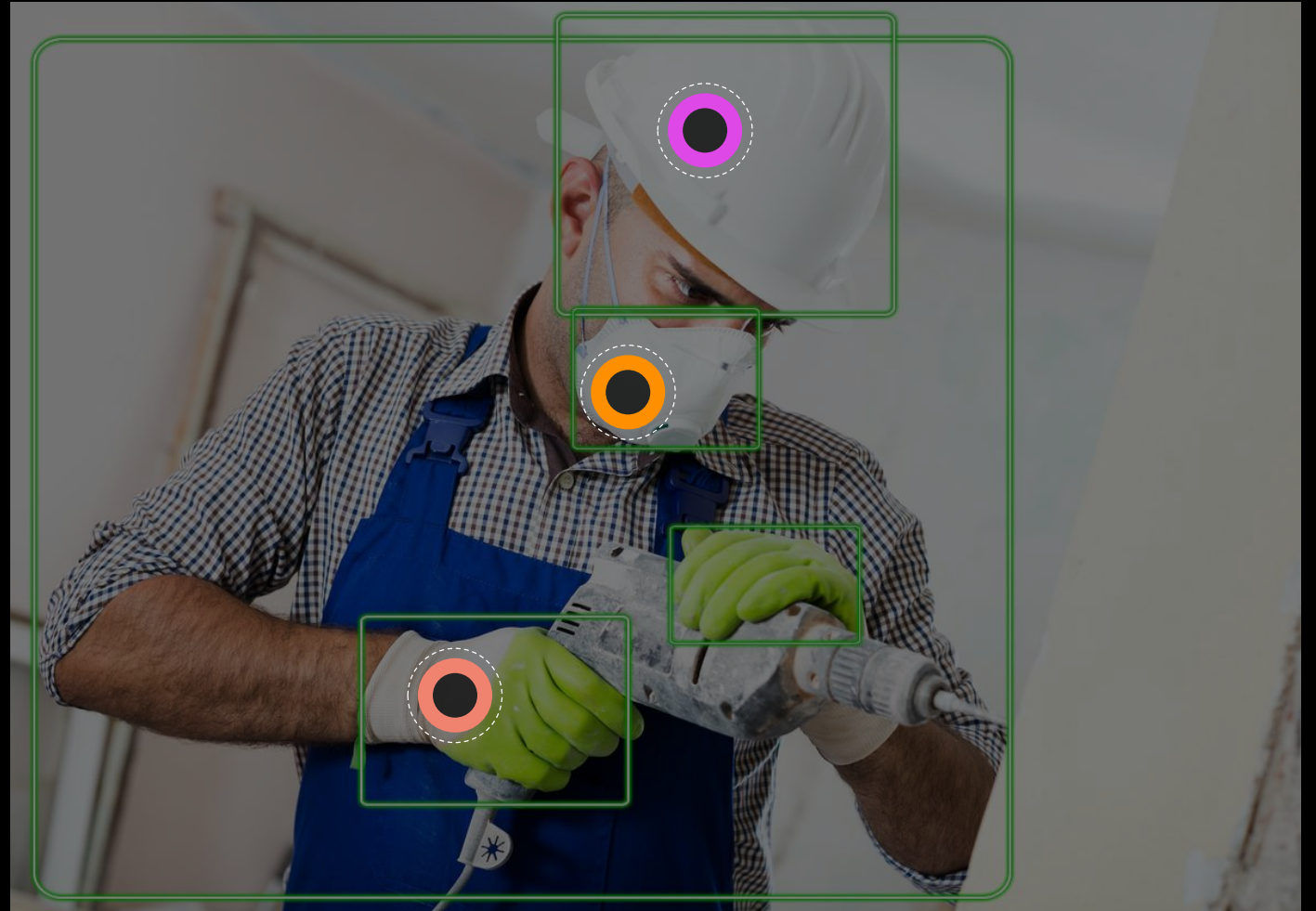
Kashif Imran

Software Development Manager,
AWS AI - Computer Vision



Agenda

- Amazon Rekognition
- Common applications
- Personal Protective Equipment (PPE) detection at scale



Amazon Rekognition image and video



OBJECT, SCENE, AND ACTIVITY



CUSTOM LABELS



CONTENT MODERATION



TEXT



PPE DETECTION



FACE DETECTION AND ANALYSIS



FACE COMPARE & SEARCH



CELEBRITY RECOGNITION



VIDEO SEGMENTS



LIVE STREAM VIDEO



PATHING

Common applications of Amazon Rekognition

Automated image & video analysis at scale



WORKPLACE SECURITY & SAFETY

- Automate PPE detection
- Improve customer & employee safety
- Improve safety best practices



IDENTITY VERIFICATION

- Verify student before and during tests
- Confirm customer initiated financial transactions
- Identify workers before providing services



MEDIA ANALYSIS

- Tag images and photos for search and discovery
- Segment videos to set binge markers
- Flag inappropriate content



INDUSTRIAL AUTOMATION

- Identify parts & components
- Detect anomalies in real-time
- Scale supply chain inventory management

Supporting customers during COVID-19

Maintaining business continuity during this difficult time



WORKPLACE SECURITY & SAFETY

Automate PPE detection

Improve customer &
employee safety

Improve safety best
practices



PPE detection

"Amazon Rekognition PPE detection solved one of our big challenges in this difficult time where we strive to deliver food safely to our customers. By using this technology in our delivery mobile application, we can now automatically check that our food delivery employees are wearing a face mask as they pick up orders from the kitchen and deliver them."

Amit Gupta
CTO, Rebel Foods

Amazon Rekognition PPE detection

Analyze images to detect if persons are wearing face covering head covers and hand covers

Helmet 97%

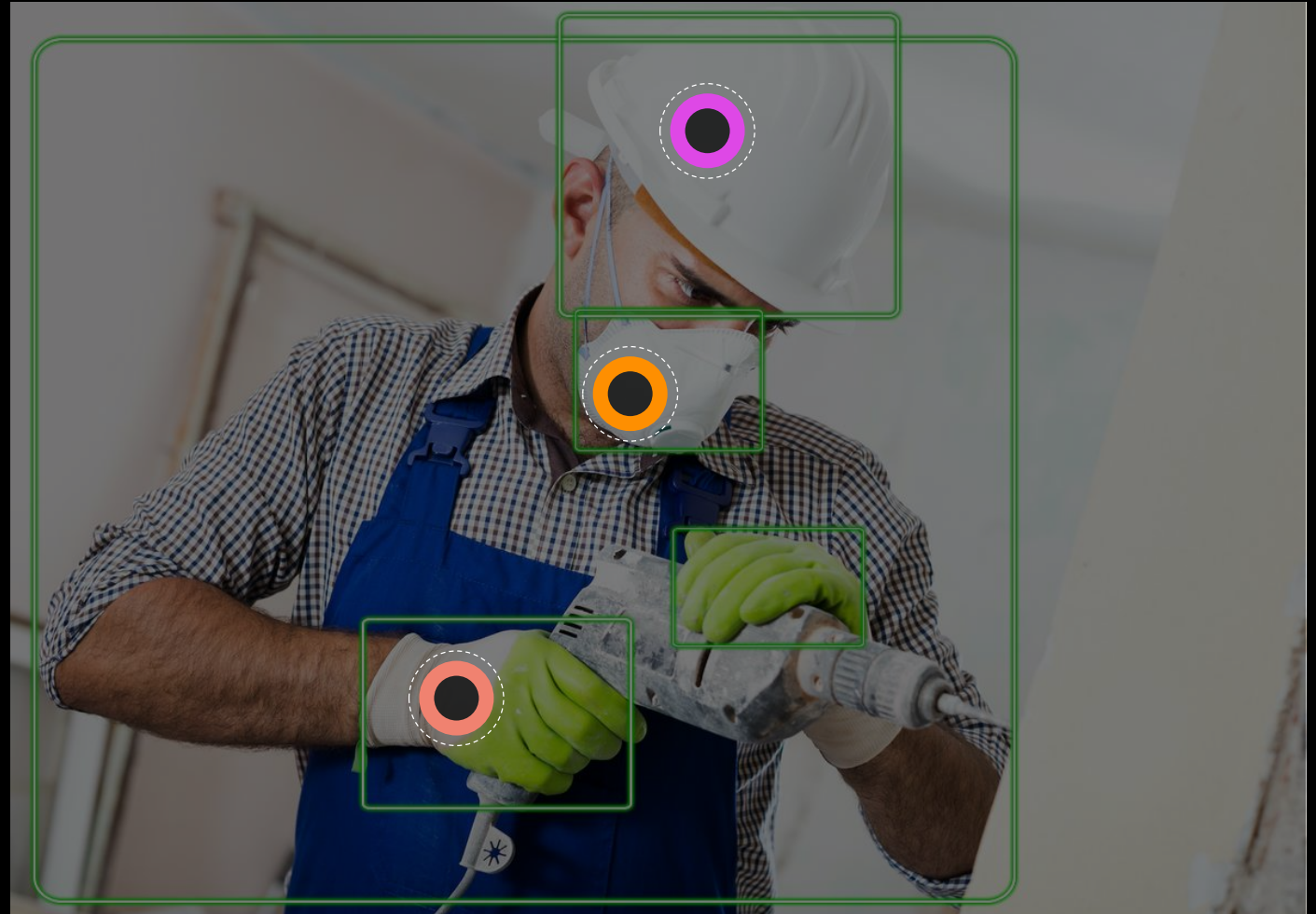
Helmet on head: true 96%

Face mask 98.8%

Face mask on face: true 83.5%

Glove 98.8%

Gloves on hand: true 94.8%



How it works

Request

```
{
  "Image": {
    "S3Object": {
      "Bucket": "<bucket>",
      "Name": "<image-key>"
    },
    "Bytes": "...",
    "SummarizationAttributes": {
      "MinConfidence": 80,
      "RequiredEquipmentTypes": [
        "FACE_COVER",
        "HEAD_COVER",
        "HAND_COVER"
      ]
    }
  }
}
```

Optional

Response

```
{
  "Persons": [
    {
      "Id": 0,
      "BodyParts": [
        {
          "Name": "FACE | HEAD | LEFT_HAND | RIGHT_HAND",
          "EquipmentDetections": [
            {
              "BoundingBox": {},
              "Confidence": 99.00,
              "Type": "FACE_COVER | HEAD_COVER | HAND_COVER",
              "CoversBodyPart": {
                "Confidence": 99.76295471191406,
                "Value": "true | false"
              }
            }
          ]
        }
      ],
      "BoundingBox": {},
      "Confidence": 99.00
    },
    {
      "Summary": {}
    }
  ]
}
```

Body parts

PPE

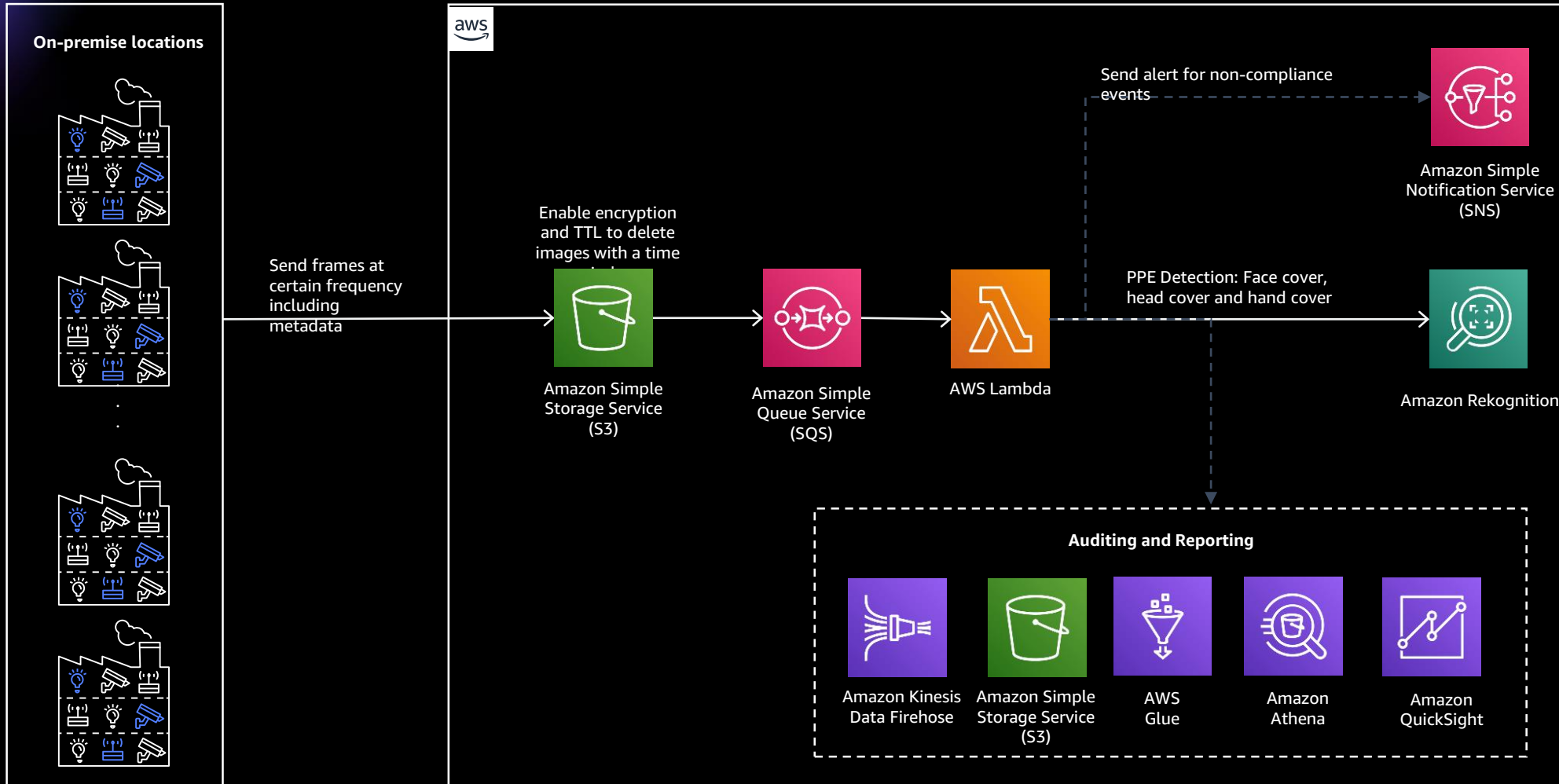
Covered or not

If SummarizationAttributes is specified

Demo

Deploying PPE detection in your organization

Reference architecture



Demo

Resources

Developer guide:

- <https://docs.aws.amazon.com/rekognition/latest/dg/ppe-detection.html>

Blog:

- <https://aws.amazon.com/blogs/machine-learning/automatically-detecting-personal-protective-equipment-on-persons-in-images-using-amazon-rekognition/>

PPE code samples and demo solution:

- <https://github.com/aws-samples/amazon-rekognition-ppe>

Visit the AI & Machine Learning resource hub for more resources

Dive deeper into these resources, get inspired and learn how you can use AI and machine learning to accelerate your business outcomes.

- The machine learning journey e-book
- 7 leading machine learning use cases e-book
- A strategic playbook for data, analytics, and machine learning e-book
- Accelerate machine learning innovation with the right cloud services & infrastructure e-book
- Choosing the right compute infrastructure for machine learning e-book
- Improving service and reducing costs in contact centers e-book
- Why ML is essential in your fight against online fraud e-book
- ... and more!



<https://bit.ly/3mwi59V>

Visit resource hub

AWS Machine Learning (ML) Training and Certification



AWS is how you build machine learning skills

Courses built on the curriculum leveraged by Amazon's own teams. Learn from the experts at AWS.

aws.training/machinelearning



Flexibility to learn your way

Learn online with on-demand digital courses or live with virtual instructor-led training, plus hands-on labs and opportunities for practical application.

explore.skillbuilder.aws/learn



Validate your expertise

Demonstrate expertise in building, training, tuning, and deploying machine learning models with an industry-recognized credential.

aws.amazon.com/certification

Thank you for attending AWS Innovate – AI/ML Edition

We hope you found it interesting! A kind reminder to **complete the survey**.
Let us know what you thought of today's event and how we can improve the event experience for you in the future.



aws-apj-marketing@amazon.com



twitter.com/AWSCloud



facebook.com/AmazonWebServices



youtube.com/user/AmazonWebServices



slideshare.net/AmazonWebServices



twitch.tv/aws

Thank you!

Kashif Imran

